



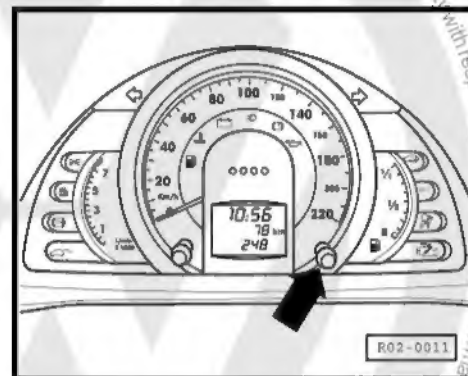
## 4 Service descriptions

### 4.1 Clock - set

Set the clock as follows:

Set the hours (2-line display):

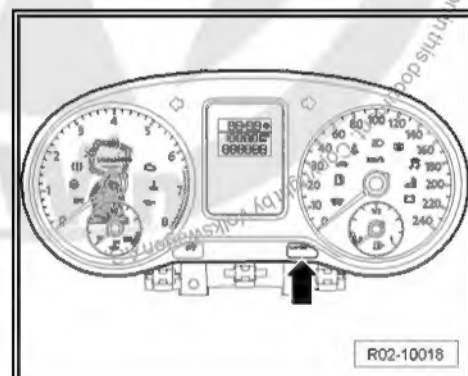
- With the ignition on, select the clock function, pressing the button -arrow- for less than 2 seconds. There will be a clock symbol beside the time.
- To activate the hour set function, keep the button -arrow- pressed until the display starts flashing, then press the button -arrow- quickly, the numbers will change sequentially in ascending order.



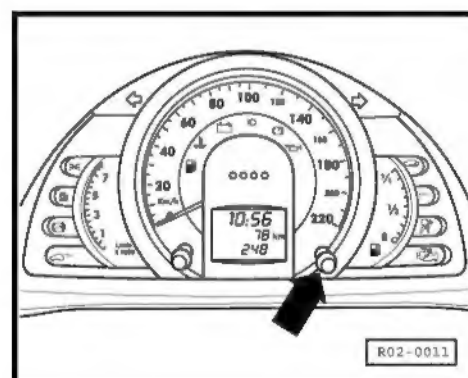
New Fox

Set the minutes:

- To activate the minute set function, keep the button -arrow- pressed until the display starts flashing, then press the button -arrow- quickly, the numbers will change sequentially in growing order.



- Press the button -arrow- for more than 2 seconds to go back to partial odometer function.

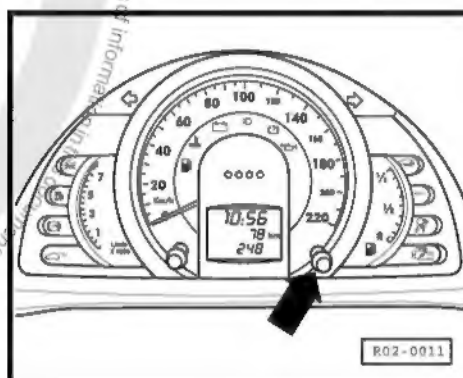
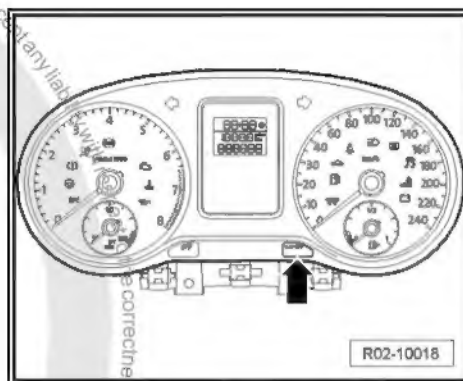




## New Fox

### Set the hours (3-line display):

- There will be a clock symbol beside the hour.
- To set the hour, with the ignition on and without the radio information on the display, slightly turn the button -arrow- counterclockwise. To set the minutes, turn the button -arrow- clockwise.
- One small turn to the limit changes only one unit at a time. If the button is turned and kept pressed, the numbers will change sequentially in ascending order.
- To set the minutes correctly based on another clock, move the button -arrow- until it reaches one unit before the exact minute. At the moment the other clock reaches the 10th minute, turn the button again to the right.



## 4.2 Maintenance interval indicator (if available) : reset with the Vehicle Diagnosis, Measurement and Information System

- ♦ with the Vehicle Diagnosis, Measurement and Information System

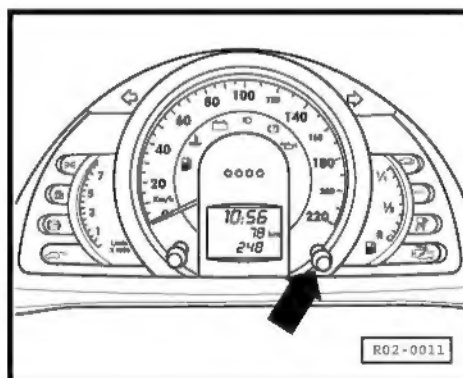
### 4.2.1 Reset the service interval indicator through the partial odometer return button (vehicles 2010 ▶)

The service interval indicator must be

- ♦ reset at the delivery inspection, at every oil change service, and at every inspection service!

Reset the indicator as follows:

- Turn the ignition off.
- Press and hold the button -arrow- next to the speedometer.

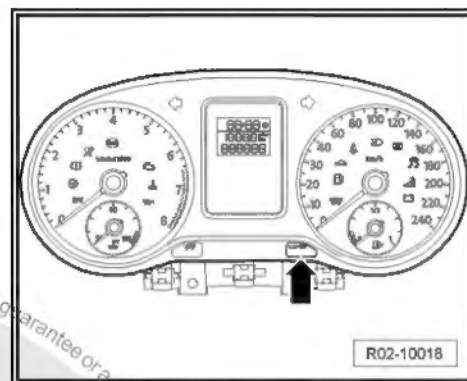




#### New Fox

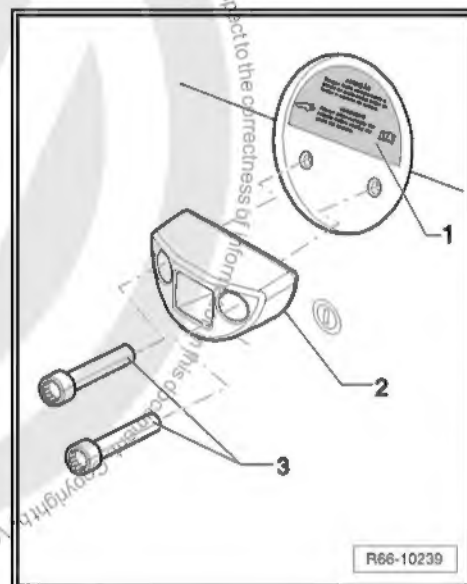
- Turn the ignition on.
- Hold the button at the right of speedometer during approximately 10 seconds.

The display resumes the normal indication.



#### 4.3 Spare wheel support stop: lubricate - (CrossFox)

- Any grease residue (contaminated grease) must be removed from the stop.
- Lubricate the stop inside -2- with Silicone grease -G000 405 A2-

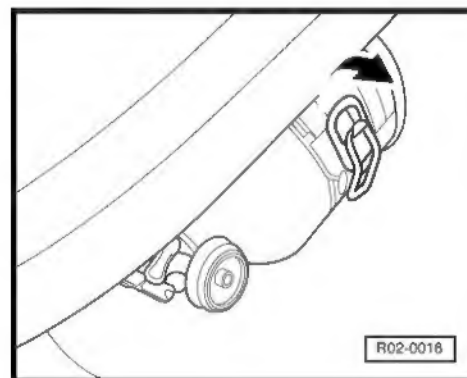


#### 4.4 Fire extinguisher - check the charge

##### 4.4.1 Engine Identification letters AQZ, BAH, CFZA

Location: fastened to a support on the lower front section of the passenger's seat

The pressure gauge indicator must be on the green range -2-, check the indicator and pressure scale:



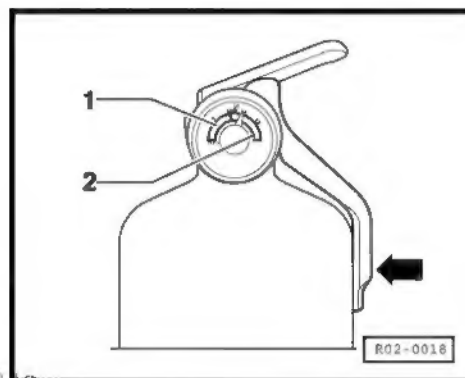


- ♦ Green range -2-= the extinguisher is charged.
- ♦ Red range -1-= the extinguisher is discharged.
- ♦ Inviolability seal -arrow-.



#### Note

- ♦ Check for possible oxidation and for fastening of components.
- ♦ The vehicle fire extinguisher is designed to be used only once, and the expiration date is defined by law!
- ♦ Check the expiration date printed on the extinguisher's cylinder.
- ♦ The inviolability seal -arrow- ensures that the fire extinguisher has not been used.
- ♦ Whenever used, the extinguisher must be immediately recharged.
- ♦ Driving vehicles with extinguishers which are out-of-date or in poor condition of use is forbidden by law.



## 4.5 Power window drive - reprogram



#### Note

*When the battery is disconnected and then reconnected, the power window drive will not be completely operational. The window drives must be reprogrammed before the vehicle's delivery. The vehicle battery cannot be disconnected after reprogramming.*

Carry out the following work sequence to start the power window drive:

- Press the key until the window is fully closed, keeping it pressed for a few more seconds.
- Repeat this operation for the other doors.

## 4.6 Radio - activate the anti-theft code

The radio equipment is supplied with a fixed code. This fixed code is not activated in the plant.

On "alpha" radios, the fixed code is activated as follows:

The security coding of the ready-to-play radio will only be activated when the fixed code is specified. The fixed code must be activated as follows:

- Turn the radio on.
- The digital display will exhibit "SAFE" and the number "1000".



- Press the keys TP and TA -1- simultaneously until "1000" appears on the digital display. Release the keys!
- Enter the code number attached to the radio card with the help of the tuning buttons -1-. The first digit of the code number is entered with key 1, the second digit with key 2, and so forth.

If you have entered an incorrect code number, "SAFE" will start blinking for a few seconds on the digital display.



#### Note

*This procedure can be repeated just once.*

If an incorrect code number is entered once again, the unit will remain inactive for approximately 1 hour.

- Leave the unit on and the ignition key in the switch for one hour.
- After 1 hour, enter the code number again.

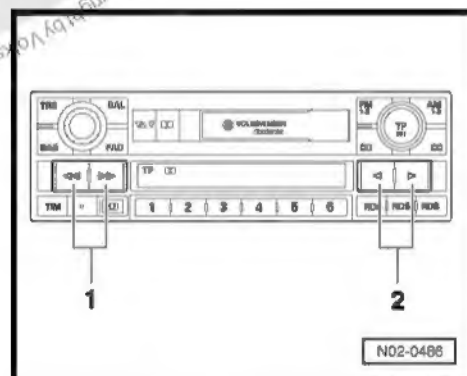
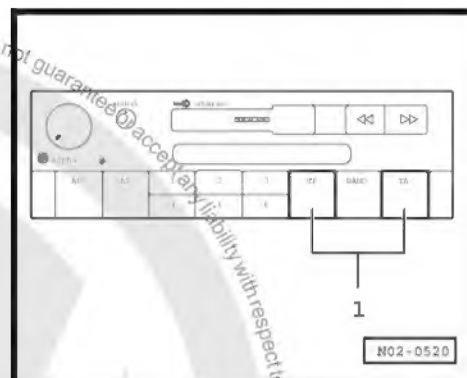
On "beta and gamma" radios, the fixed code is activated as follows:

- Turn the radio on.
- The digital display will exhibit "SAFE".
- After approximately 3 seconds "1000" will appear on display.
- Enter the code number attached to the radio card with the tuning buttons 1 to 4. The first digit of the code number is entered with the button 1, the second digit with the button 2, and so forth.
- Then, press the search button -1- or the manual tuner -2- for more than 2 seconds. Release the button!

If the correct code is entered, the current frequency is displayed after a short "adjustment phase". During this pause, a list of the strongest regional stations is recorded and will be available for tuning. When the ignition key is removed, the LED in the radio's lower left section must blink. If the LED blinks, the radio is ready to play and the anti-theft code is activated.

On "RCD 200" radios, the fixed code is activated as follows:

- Turn the radio on
- After approximately 3 seconds "1000" will appear on display.





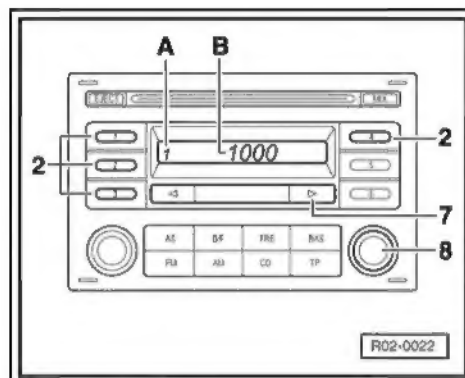
- Enter the code number attached to the radio card with the help of the pre-tuning buttons 1 to 4-2-. The first digit of the code number is entered with the key 1, the second digit with the key 2, and so forth.

If the correct code was entered, keep the button -7- or -8- pressed for 2 seconds. When the ignition key is removed, the LED in the radio's lower left section must blink. If the LED blinks, the radio is ready to play and the anti-theft code is activated.

-A-number of attempts to activate the anti-theft code.

-B-anti-theft code in activation.

If you have entered an incorrect code number, "SAFE" will start blinking for a few seconds on the digital display.



#### Note

*This procedure can be repeated just once.*

If an incorrect code number is entered once again, the unit will remain inactive for approximately 1 hour.

- Leave the unit on and the ignition key in the switch for one hour.
- After 1 hour, enter the code number again.

## 4.7 Reading radio code using Diagnosis, measurement and information system

Authorization prerequisites for the diagnostic tester

- The vehicle diagnostic tester is connected via the Central Partner Network (CPN) with the central database (Carport, Fazit).
- Available access for the user of the system "GeKo" (secrecy and component protection)



#### Note

- ♦ The radio codes can be read in the central database and can be displayed on diagnostic tester.
- ♦ For radio activation the codes must be entered via radio buttons, as previously ⇒ [page 36](#).

Procedure

- Connect Diagnosis, measurement and information system ⇒ [page 25](#).
- Switch on ignition.
- Touch the field or button on the screen for "GUIDED FUNCTIONS".
- Confirm with button.
- Select one after the other:
  - ♦ Brand
  - ♦ Type
  - ♦ Model year
  - ♦ Engine code





- Confirm vehicle identification.
- Select one after the other:
  - ◆ "Radio system".
  - ◆ "Reading radio code"
- Read code according to the information of "GUIDED FUNCTIONS".
- Finish code reading as follows:
  - Press "GoTo" button on display.
  - Press the "End" button on display.
  - Press "End" button in End menu.
- Switch off ignition and separate diagnostic connections.

#### 4.8 Wheel fastening screws - tighten to correct torque

Special tools and workshop equipment required

- ◆ Torque wrench - 40 to 200 Nm (enc. 1/2") -VAG 1332-



V.A.G 1332



W00-0428

##### 4.8.1 Hub cap/Super hub cap

The hook for removing the hub cap/ super hub cap is in the vehicle tool kit

##### 4.8.2 Wheel bolts



Note

*Make sure that the wheel screws are tightened in a cross pattern with the following tightening torque:*

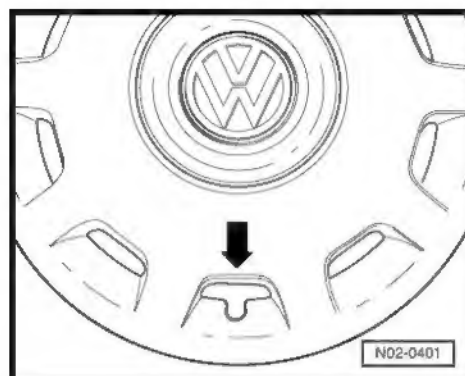
Tightening torque: 120 Nm.

- After the works are concluded, place the hook for removing the hub caps/super hub caps on the vehicle's tools.



### 4.8.3 Super hub cap assembly (if available)

- Install the super hub cap so that the tire inflation valve is positioned in the notch -arrow-.



## 4.9 Battery - check terminals for proper seating and fastening

### 4.9.1 Battery - check fastening



#### Note

*Due to manufacturing reasons, different types of batteries are installed. Specific work deviations and instructions must be observed for each battery type ➔ Electrical equipment, Rep. Gr. 27 ; Starter, generator, battery*

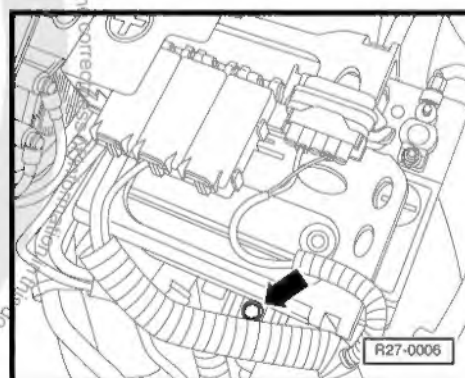
#### Visual inspection

Carry out work sequence as follows:

- Check the battery case for damage. If the case is damaged, battery electrolyte may leak.
- Check the battery poles (Battery cable connections) for damage. If the battery poles are damaged, this will compromise the contact with the cable connections. This may cause a fire and there may be electrical system failures.
- Check the battery fastening -arrow- and, if necessary, tighten the fastening screw to 25 Nm.

If the battery is not firmly fastened, the following may happen:

- The battery life may be reduced because of vibration.
- Damage to the battery case.
- Safety problems in case of collision.



### 4.9.2 Terminal seating

Properly seated battery terminals ensure the perfect operation of the electrical system and a long battery life.

Special tools and workshop equipment required





- ◆ Torque wrench - 5 to 50 Nm (fit. 1/2") -VAG 1331-

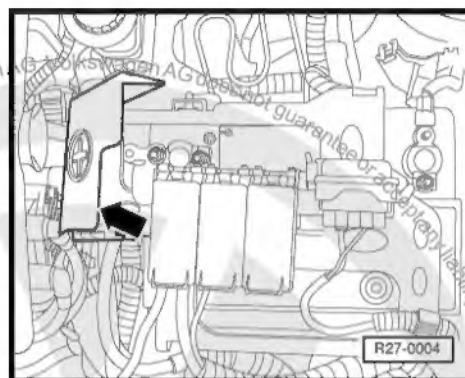
V.A.G 1331



W00-0427

Carry out work sequence as follows:

- Press the locks and tilt the positive battery pole cover -arrow-

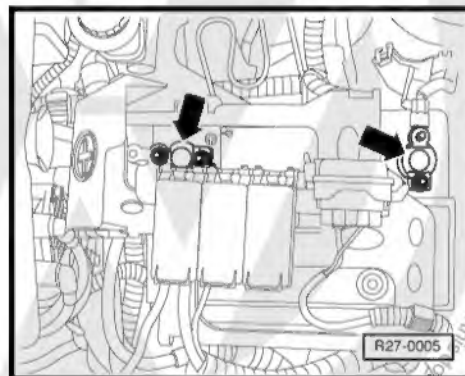


- With alternate movements of the positive and negative battery cables, check if the terminals -arrows- are firmly fastened to the battery poles.



**WARNING**

*If the terminal is not firmly fastened to the battery pole, first you must disconnect the terminal connected to the negative battery pole to avoid risk of accidents.*



If the terminal is not firmly fastened to the positive battery pole:

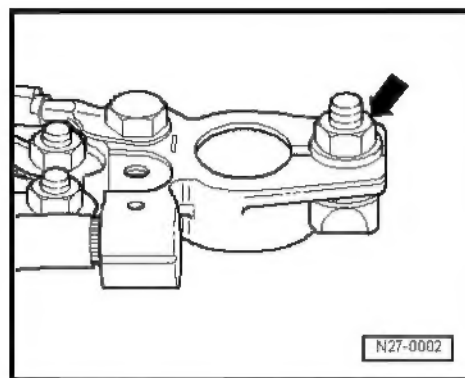


- Tighten the terminal screws in the battery poles to a torque of 5 Nm -arrow-.



#### Note

- ◆ The tightening torque for the additional battery terminals is 6 Nm.
- ◆ The battery poles cannot be lubricated.
- ◆ The battery pole terminals can only be connected manually and should not be forced, thus avoiding damage to the battery case.
- ◆ After reconnecting the battery, make an inspection of the vehicle equipment (radio, clock, electric convenience system, power window drive, etc.) as per the repair manual and/or instruction manual.
- ◆ It is essential that you make a visual inspection of the external condition and the battery connections before any measurements.

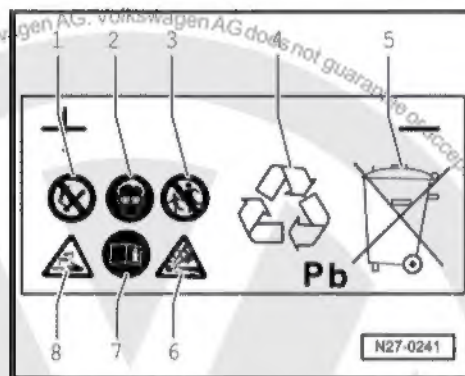


#### WARNING

Please follow the warning notes and safety rules for lead and acid batteries, represented by symbols on the battery tag.

#### Warning notes and safety rules for lead and acid batteries

- 1 - Fires, sparks, open flame and smoking are prohibited:
  - Avoid sparks and electrostatic discharges when handling cables and electrical devices;
  - Avoid short circuits (never lay a tool on top of a battery).
- 2 - Please wear protective goggles.
- 3 - Keep children away from acid and batteries.
- 4 - Recycling:
  - Dispose of old batteries at a battery collection center (supplier).
- 5 - Never discard old batteries in domestic waste!
- 6 - Risk of explosion:
  - A highly explosive mix of oxy-hydrogen gas is produced when charging batteries.
- 7 - Follow the instructions mentioned on the battery, in the electrical system repair manual and in the operation manual.
- 8 - Danger of chemical corrosion.
  - The battery acid is highly corrosive, therefore wear protection goggles and gloves;
  - Do not tilt the battery. Acid can leak from the degassing openings.





## 4.10 Battery - check the charge capacity



### Note

*The vehicle must have remained turned off for at least 2 hours*

### 4.10.1 Check the charge indicator "inspection glass" at Delivery inspection

Carry out a visual inspection on the charge indicator "inspection glass" -arrow-.

The Charge indicator "inspection glass" informs the battery charge condition.



### Note

- ◆ *Since the inspection glass is located on a single battery cell, the indication only refers to this cell. A precise assessment on the battery condition is only possible through a test to check the battery charge capacity = [page 43](#).*
- ◆ *Specially when a battery is recharged, that is, even when the battery is charged during driving, air bubbles can form under the inspection viewing glass. These bubbles change the color indication in the inspection viewing glass.*
- ◆ *The inspection viewing glass may be located at various positions on the battery.*
- Before making the visual inspection, tap lightly and carefully with a screwdriver handle on the charge indicator glass -arrow- so that air bubbles do not interfere with the inspection.

This way, any air bubbles that could influence the indicator are eliminated and dissipate.

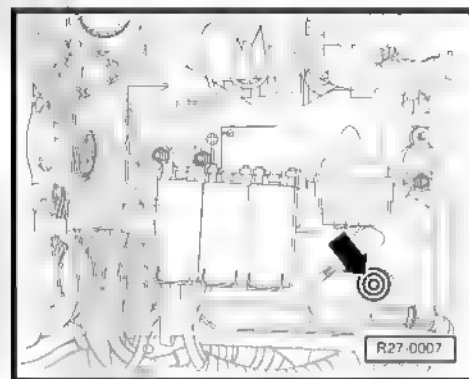
The color indication of the "inspection glass" becomes more accurate. There are three possible indications:

- Green → the battery is sufficiently charged.
- Black → no charge or insufficient charge, the battery must be charged (repair measure). For battery recharging procedures ⇒ Electrical system; Rep. Gr. 27 ; Starter, generator, battery .
- Colorless or yellow → the battery must be replaced (repair measure).

### 4.10.2 Test for checking the battery charge capacity

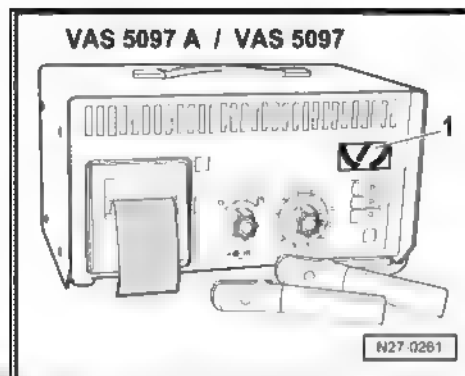
Special tools and workshop equipment required

- ◆ Battery test device, with printer -VAS 5097A- or





- ◆ -VAS 5097- Battery test with printer, converted (modification-  
software recognized by logo -1-)



**Note**

*When using the Battery test device, with printer -VAS 5097A- or -VAS 5097-, it is not necessary to remove the battery. Also, it is not necessary to disconnect the battery.*

**Performing battery charge test sequence:**

- Turn ignition off.
- Connect the claws to the battery poles. ⇒ Check the battery test device operation instructions.

The claws must have good contact with the battery poles.

- The charge current varies and the battery capacity must be adjusted on the test device. ⇒ Battery test device operation instructions.





- Carry out the battery charge test according to the instructions of use for the battery test device and compare the test printout -arrow- with the following table.

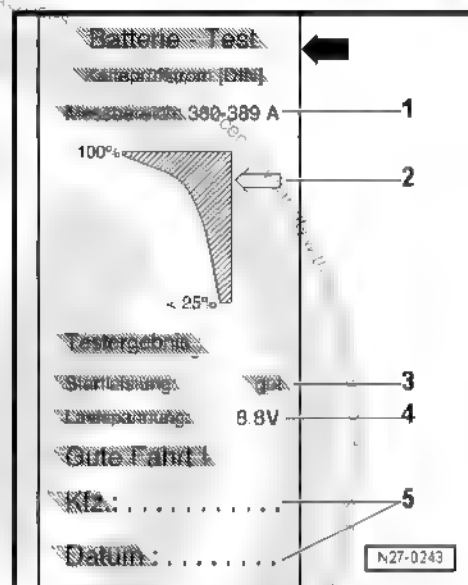
Clarifications concerning the test printout:

- 1 - measurement range adjusted on the test device.
- 2 - diagram (the arrow indicates the battery state)
- 3 - test result
- 4 - battery voltage during the charge test.
- 5 - vehicle data and date (to be written by the person in charge of the test).



Note

The test printout is required for filling out the guarantee.



Battery test device printout	Measures to be taken
Very good starting power	Battery OK
Good starting power	Battery OK
Insufficient starting power	Recharge the battery <sup>11)</sup>
Weak starting power	Recharge the battery <sup>11)</sup>
Very poor starting power	Recharge the battery <sup>11)</sup>
Unsuitable for tests	Recharge the battery <sup>11)</sup>

11) After recharging the battery, its charge test must be carried out again. If after recharging the battery the following indications "Insufficient starting power, poor starting power, very poor starting power or unsuitable for tests" appear, then the battery must be replaced

Clarification for the battery charge test:

During this test, the battery voltage is reduced through excessive charge (a high current flows).

If the battery is OK, the voltage value lowers to the minimum voltage.

If the battery is damaged or has low charge, then the battery voltage will quickly drop below the minimum voltage.

After the test, this low voltage value will remain for a while; then, the voltage will slowly increase.

For battery recharging procedures ⇒ Electrical system; Rep. Gr. 27 ; Starter, generator, battery .

#### 4.11 Engine oil level - check and replenish if necessary

Please note the following:

After turning the engine off, you must wait for at least 3 minutes so that the oil flows back to the crankcase.

- Pull the oil dipstick out, clean it with a clean cloth and push the oil dipstick in again up to the seat (stop).



- Pull the oil dipstick out again and check the oil level for the following conditions:

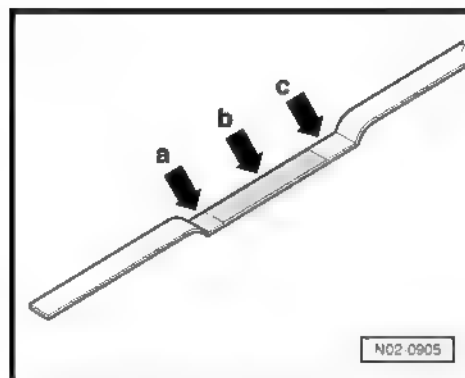
#### Condition 1

- Area -a- Minimum marking region. Replenish the oil. It is sufficient for the oil level to be anywhere within area -b-.
- Area -b- It is not necessary to replenish the oil.
- Area -c- Maximum marking region. Oil cannot be replenished.



#### Note

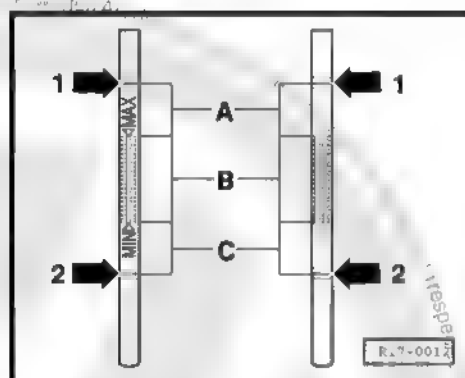
- ◆ *There is danger of damaging the catalytic converter when oil level is above area -c-*
  - ◆ *The oil level must be between the minimum and maximum markings. Make sure that the oil level does not exceed the maximum marking.*
- Pull the oil dipstick out again and check the oil level.



#### Condition 2

- Area -A- Oil must not be replenished.
- Area -B- It is not necessary to replenish the oil.
- Area -C- Replenish the oil level. It is sufficient for the oil level to be anywhere within area -B-.
- Arrow -1- Maximum marking
- Arrow -2- Minimum marking

- Pull the oil dipstick out again and check the oil level.



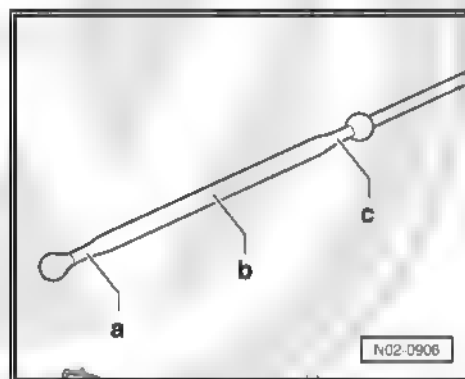
#### Condition 3

- Area -a- Replenish the oil level. It is sufficient for the oil level to be anywhere within area -b-.
- Area -b- It is not necessary to replenish the oil.
- Area -c- The oil level cannot be replenished.



#### Note

- ◆ *With the oil level below the minimum marking (area -a-), replenish the oil until it reaches (area -b-) according to the oil specification. ➔ [page 58](#).*
- ◆ *With the oil level above area -c- there is the risk of damaging the catalytic converter*
- ◆ *During oil changes, you must add oil until the maximum marking.*



## 4.12 Sunroof: check operation, clean and lubricate the guide rails

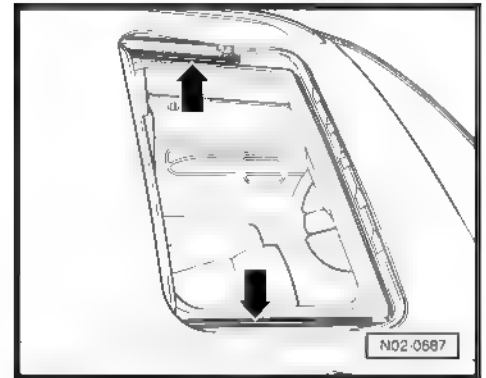
Carry out the following work procedures:

- Check operation of sunroof.





- Clean the guide rails -arrows- and lubricate with Special grease -G 000 450 02- .



## 4.13 Transport safety devices - remove

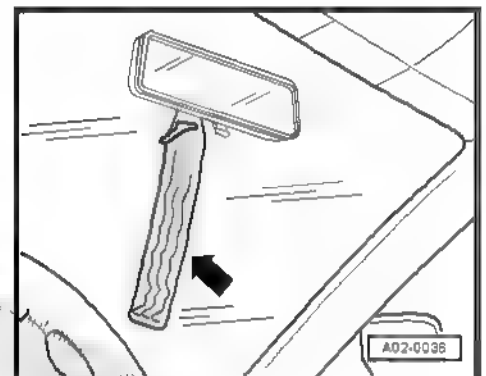
### 4.13.1 Engine identification letters ASY, BLH, BNM, BKR, BMD, and CFZA

- Some vehicle versions include front suspension blocking devices. These vehicles can be identified by a tag attached to the internal rearview mirror -arrow-.



#### WARNING

- ◆ *The blocking devices must be mandatorily removed during the vehicle delivery inspection!*



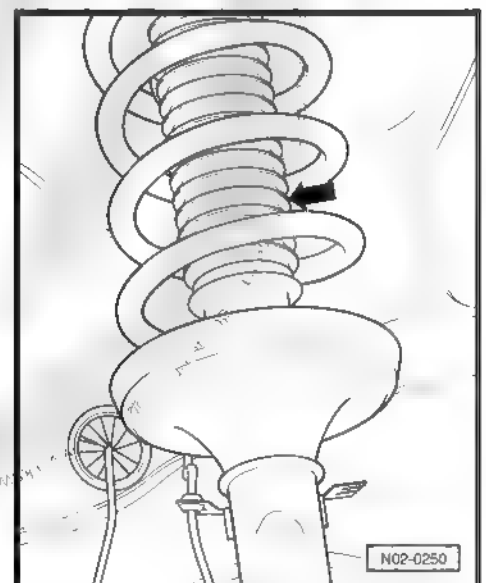
Carry out the following tasks:



#### Note

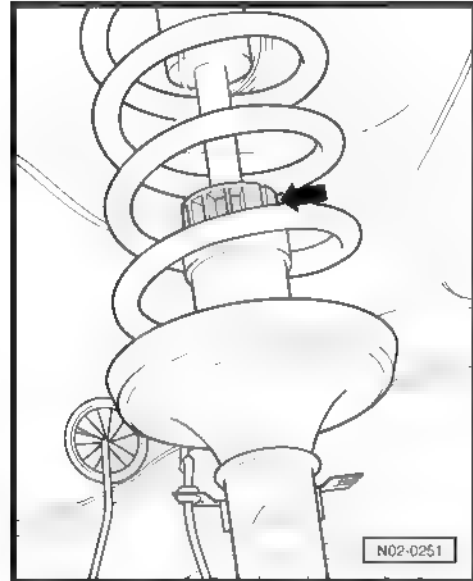
*It is not necessary to remove the wheels.*

- Relieve the load from the coil springs by lifting the vehicle with the workshop lift.
- Remove the safety devices (blocking devices) from the suspension column.
- Move the shock absorber rod protection bellows -arrow- upwards.





- Remove the blocking device -arrow- from the shock absorber rod
- Move the shock absorber rod protection bellows downwards



## 4.14 Driver and passenger airbags - visual inspection of Airbag units

### 4.14.1 Driver's airbag

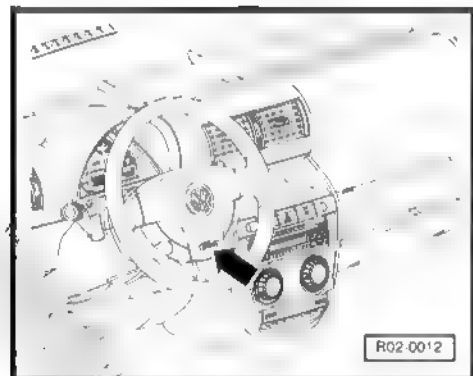
The identification feature of the Airbag is the "AIRBAG" inscription -arrow- on the steering wheel padded plate.

- Carry out visual inspection of the padded surface for external damage.



#### WARNING

- ◆ The steering wheel padded plate must not be glued, coated, or undergo any type of rework. This information must be emphasized to the customer, to ensure the future Airbag's operation.
- ◆ The steering wheel's padded plate must only be cleaned with a dry cloth or a cloth moistened with water.



### 4.14.2 Passenger's airbag

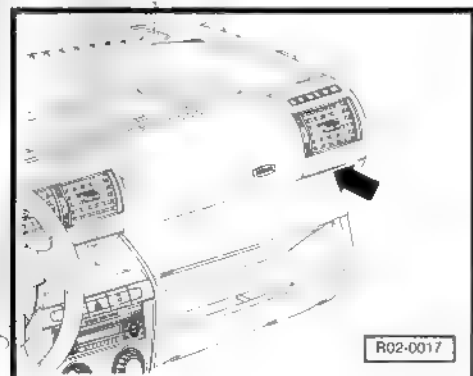
The identification feature of the Airbag is the "AIRBAG" inscription -arrow- on the right side of the instrument panel.

- Carry out the visual inspection of the instrument panel surface for external damage.



#### WARNING

- ◆ The plate that covers the passenger's Airbag module must never be glued, coated, or undergo any type of rework. The customer must be guided about this information to ensure the future Airbag operation.
- ◆ The plate that covers the Airbag module must only be cleaned with a dry cloth or a cloth moistened with water.





## 4.15 Windshield and rear window wiper and washer - check the operation



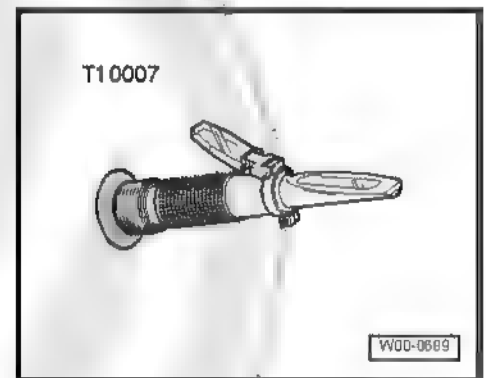
### Note

*If during the operating check it is verified that the wiper blades shake or make noises, you must verify the wiper blade support angle. ⇒ [page 51](#).*

### 4.15.1 Replenish the reservoir level

Special tools and workshop equipment required

- ◆ Refractometer for cooling system liquid analysis -EQ 7093 (VWB) - ou - T 10007-

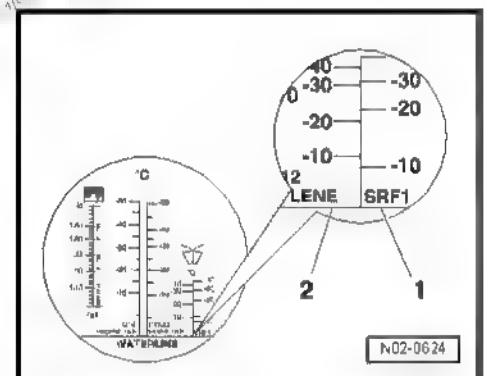


The exact value for the following checks may be read in the light-dark limit. To better see the light-dark limit, use a dropper/pipette to put a water drop on the glass. Now, the light-dark limit may be easily recognized by the "WATERLINE".

- Check the concentration of additive for front/rear window wipers with Refractometer for cooling system liquid analysis -EQ 7093 (VWB) - ou - T 10007- (follow the instruction manual).

The refractometer scale -1- is based on the original Volkswagen product according to the table: ⇒ [page 49](#).

The scale -2- is based on commercially available cleaning products as well as on the mix of the commercial cleaning product with the original Volkswagen product according to table: ⇒ [page 49](#).



### 4.15.2 Windshield/rear window washer additive applications

Application	Windshield/rear window washer additive
EUROPE only	-G 052 164 A1- or -G 052 164 A2-
Tropical climate countries	-G 052 131 A2- until 07/2005 -G 052 184 A2- from 08/2005



#### 4.15.3 Mix ratio in arctic climate countries

Antifreeze protection up to	Windshield/rear window washer additive	Water
3 20 ?	1 part	2 parts
-22.00 ?	1 part	1 part
-40.00 ?	2 parts	1 part

#### 4.15.4 Mix ratio in tropical countries

Until 07/2005

Antifreeze protection up to	Windshield/rear window washer additive	Water
-	1 part	19 parts

From 08/2005

Antifreeze protection up to	Windshield/rear window washer additive	Water
-	1 part	99 parts

Complete:

The Windscreen washer fluid reservoir must be replenished to the top.



#### Note

- ◆ The original Volkswagen product Windscreen/rear window washer additive -G 052 164 A1- or the -G 052 164 A2- have cleaning properties that protect the ejectors, the reservoir and connection hoses against freezing.
- ◆ In warm seasons of the year, it is also possible to use original Volkswagen product Windshield/rear window washer additive -G 052 131 A2- until 07/2005 and Windshield/rear window washer additive -G 052 184 A2- from 08/2005, which does not have antifreeze protection, but has cleaning properties.
- ◆ The antifreeze protection for the Windshield washer should be guaranteed at approximately -15 °C (for Arctic climate countries, approx. -31.00 ?).

#### 4.15.5 Windshield washer - check and adjust the ejectors

Check the Windshield washer's system ⇒ Electrical system; Rep. Gr. 92 ; Windshield, rear window and headlight washer and wiper



**i** Note

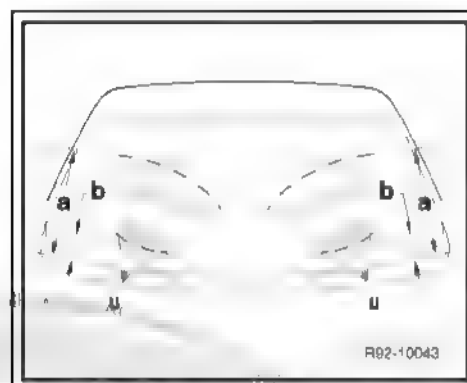
- ◆ If the ejector does not enable adjustment, due to impurities, remove the ejector, ⇒ *Electrical system, Rep. Gr. 92* ; Windshield, rear window and headlight wiper and washer and wash with water in the opposite direction of the nozzle jet direction.
- ◆ Under no circumstances should needles or similar objects be used, since this might damage the nozzle's water passage.
- ◆ Then, you can blow compressed air in the opposite direction of the nozzle jet direction.
- ◆ The spray ejectors are pre-adjusted. However, some minor height differences can be adjusted.

Nozzle jet position:

-a-: 18.90 in

-b-: 6.50 in

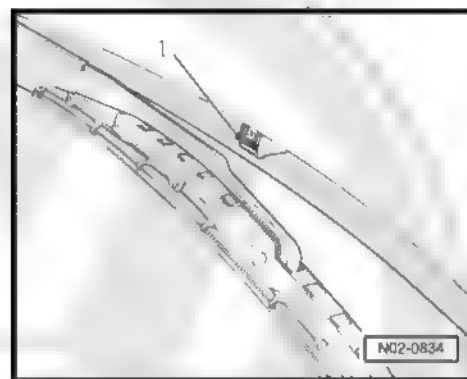
If the two action surfaces of the ejector jet are not according to the dimensions -a- and -b-, the jet height must be adjusted as explained below:



- Adjust the jet through the nozzle tab-1-, by moving it slightly with your hand, upward or downward, with the front bonnet closed.

**i** Note

To perform the adjustment, support the ejector with your hand to prevent it from moving from the housing.



#### 4.15.6 Rear window washer - check the ejector

**i** Note

- ◆ If the ejector jet is irregular, replace the ejector (repair measure).
- ◆ Under no circumstances should needles or similar objects be used, since this might damage the ejector water passage.
- Check the ejector projection.

The ejector jet must fall on the centre of the washer area.

#### 4.16 Windscreen and rear window wiper blades - check the resting position

Special tools and workshop equipment required





- ♦ Torque wrench - 5 to 50 Nm (fit. 1/2") -VAG 1331-

V.A.G 1331

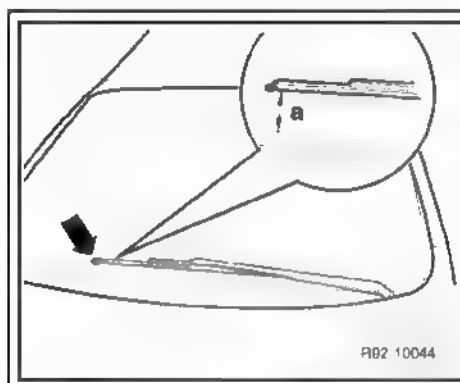


V400-0427

#### 4.16.1 Windscreen wiper blades - adjust the resting position

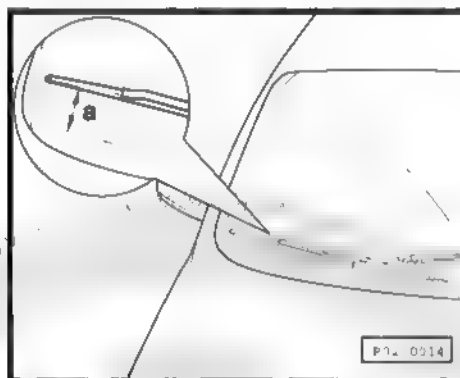
##### Driver side

- $-a- = 30 \pm 5$  mm (measured in the wiper blade). The adjustment can also be made by using the round marking on the glass, which corresponds to the blade installation position (only Europe)-arrow-.
- Assembly reference: wiper blade edge.
- Tightening torque of the wiper arm and blade set 15.5 Nm.



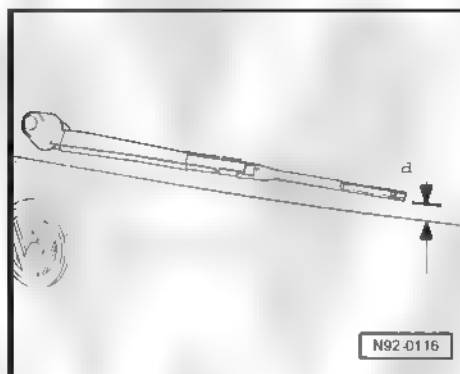
##### Passenger's side

- $-a- = 65 \pm 5$  mm (measured in the wiper blade) or 3rd. serigraphy trace.
- $-a- = 50 \pm 5$  mm (measured in the wiper blade, only Europe).
- Tightening torque of the wiper arm and blade set 15.5 Nm.



#### 4.16.2 Rear window wiper blade - adjust the resting position

- The distance  $-a-$  between rear window wiper rubber and the lower edge of the window must be 36 to 46 mm.
- To adjust the final rear window wiper position, move the wiper rod.
- Wiper rod tightening torque 12 Nm.



#### 4.17 Wiper blade - check the incidence angle



##### Note

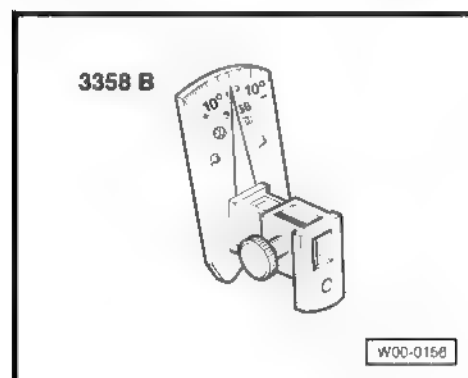
Check the incidence angle only when the wipers are vibrating or noisy.





## Special tools and workshop equipment required

- ◆ Adjustment device -3358B-



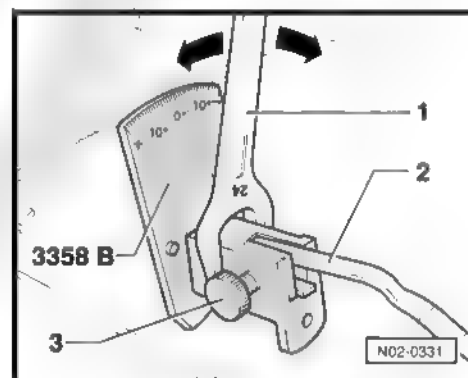
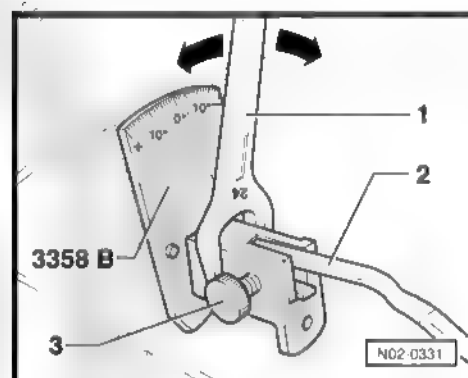
Carry out work sequence as follows:

- Place the wiper arm in the resting position.
- Remove the wiper blade.
- Place the wiper arm -2- on Adjustment device -3358B- and fasten with the screw -3-.
- Check the incidence angle according to the following table:

Incidence angle (nominal values)	
Driver's side	- 5,0°
Passenger's side	-5,0°
Tolerance	± 2,0°

If necessary, adjust the incidence angle to the nominal value as follows

- Place the Wrench -1- on the Adjustment device -3358B- and move -arrows- the wiper arm -2- to the nominal value.
- Compare the adjusted value, as per the table. If necessary, repeat the adjustment and control processes until reaching the nominal value.
- Remove the Adjusting device -3358B- and install the wiper blade.
- Check the wiper for smooth operation.



## 4.18 Tire pressure (including spare wheel), condition, tread, sides and groove depth - check



### Note

*For driving safety reasons, only tyres of the same type and profile version must be installed on a vehicle!*

### 4.18.1 Check the condition (including spare wheel)

Carry out work sequence as follows:



Delivery inspection:

- Check the tread and sides for damage and, if necessary, remove foreign bodies, such as nails and pieces of glass, for example



Note

*In case of faults, please check if it is necessary to install a new tire.*

Inspection service:

- Check the tread, sides and groove depth for damage and, if necessary, remove foreign bodies, such as nails and pieces of glass, for example.
- Check the tyres for wearing, treads worn on only one side, porosity on the toothed sides, cuts and perforations.



Note

*The faults verified must be reported to the customer.*

#### 4.18.2 Check the treads (including spare wheel)

From the front tire treads it is possible to evaluate, for example, if there is the need to check the camber and convergence:

- ◆ The existence of burrs on the tire profile may be caused by convergence failure.
- ◆ Tread wear on only one side can be mostly caused by camber fault.

If there is such type of wearing, the cause must be determined by measuring the axle geometry (repair measure).

#### 4.18.3 Check the tyre profile depth (including spare wheel)

- Check the groove's depth

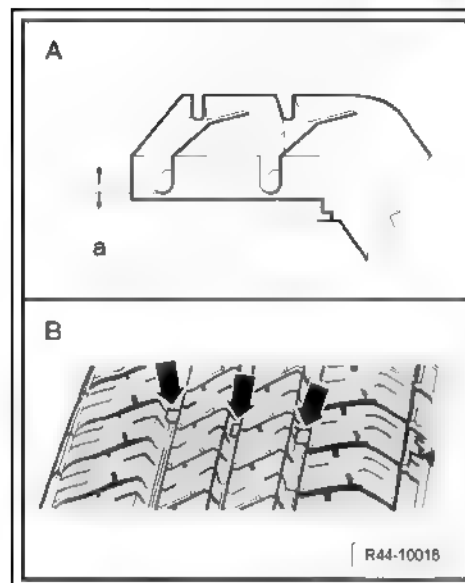
A - Minimum groove depth -at-1.6 mm.





## B - Tread wear indicators -arrows-.

It is necessary to replace the tyres when the tread wearing reaches the indicators -position 1- at the bottom of the grooves.



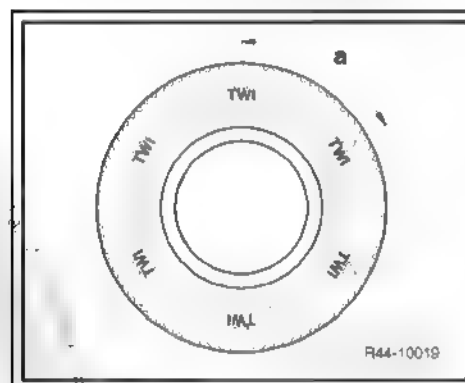
The points where tread wear indicators are found are identified by the acronym TWI (Tread Wear Indicators), distributed at every 60 degrees -a- on tire perimeter.

In this situation, the groove depth is approximately 1.6 mm. However, considering that a worn tire is more likely to skid on wet surfaces, we recommend replacing a tire when the groove depth reaches 3 mm.



### Note

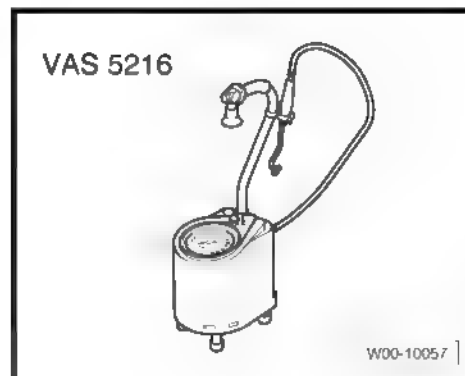
- ◆ This value may be different depending on each country's legal requirements.
- ◆ The minimum profile depth is reached when the wear indicator at the tread, adjusted at 1.6 mm of height, no longer displays a profile.
- ◆ If the profile depth is close to the legally accepted depth, the customer must be informed.
- ◆ The tires must also be replaced when they are cut, deformed, or display other damage.



## 4.18.4 Tyre pressure (including spare wheel) - check and correct if necessary

Special tools and workshop equipment required

- ◆ Tire inflation device -VAS 5216-





#### Note

- ◆ Please notice that the tire pressure values mentioned in the table are valid for cold tires. Heated tyres should not be excessively deflated.
- ◆ The pressure values for the respective model can also be found on an adhesive tag located inside the fuel reservoir filling nozzle compartment cover.



#### Note

On the CrossFox, the spare wheel has an anti-theft screw, which socket is located on the tool bag.

### 4.18.5 Tyre pressure table

(for all sizes of tyres assembled in the factory)

Pressure values in PSI (pounds/sq-in)



#### Note

Values obtained at publishing date!

	half load front and rear		full load front and rear	
Engine identification letters AQZ, BJE, BNX, with mechanical steering				
175/65 R14 82T	31	27	33	39
Engine identification letters AQZ, BJE, BNX				
175/65 R14 82T	29	28	31	36
185/60 R14 82H	30	29	33	37
195/55 R15 85H	27	27	28	33
Engine identification letters BAH, BJA, BPA				
175/65 R14 82T	31	29	34	38
185/60 R14 82H	30	29	33	37
195/55 R15 85H	28	28	30	34
Engine identification letters BLH				
185/60 R14 82H	30	29	33	37
Engine identification letters ASY				
175/65 R14 82T	32	30	35	39
195/55 R15 85H	30	29	31	35
Engine identification letters BMD with mechanical steering				
165/70 R14 81T	35	32	35	41
Engine identification letters BMD				
165/70 R14 81T	29	28	32	38
185/60 R14 82T	29	28	32	38
195/55 R15 85V	28	28	30	36
Engine identification letters BKR				
165/70 R14 81T	32	29	35	41
175/65 R14 82T	32	30	35	39



	half load front and rear		full load front and rear	
185/60 R14 82T	32	29	35	41
195/55 R15 85V	28	28	30	36
Engine identification letters BNM				
185/60 R14 82T	33	30	36	42
195/55 R15 85V	29	28	32	38

#### CrossFox

Engine identification letters BKR				
205/60 R15 91V	29	32	29	38
Engine identification letters BNM				
205/60 R15 91V	29	32	29	38
Engine identification letters BAH, BJA and BPA				
205/60 R15 91V	29	32	29	38

Tyre pressure values in bar.



#### Note

*Values obtained at publishing date!*

	half load front and rear	full load front and rear		
Engine identification letters AQZ, BJE, BNX, with mechanical steering				
175/65 R14 82T	2,1	1,9	2,3	2,7
Engine identification letters AQZ, BJE, BNX				
175/65 R14 82T	2,0	1,9	2,1	2,5
185/60 R14 82H	2,1	2,0	2,3	2,6
195/55 R15 85H	1,9	1,9	1,9	2,3
Engine identification letters BAH, BJA, BPA				
175/65 R14 82T	2,1	2,0	2,3	2,6
185/60 R14 82H	2,1	2,0	2,3	2,6
195/55 R15 85H	1,9	1,9	2,1	2,3
Engine identification letters BLH				
185/60 R14 82H	2,1	2,0	2,3	2,6
Engine identification letters ASY				
175/65 R14 82T	2,2	2,1	2,4	2,7
195/55 R15 85H	2,1	2,0	2,1	2,4
Engine identification letters BMD with mechanical steering				
165/70 R14 81T	2,4	2,2	2,4	2,8
Engine identification letters BMD				
165/70 R14 81T	2,0	1,9	2,2	2,6
185/60 R14 82T	2,0	1,9	2,2	2,6
195/55 R15 85V	1,9	1,9	2,1	2,5
Engine identification letters BKR				
165/70 R14 81T	2,2	2,0	2,4	2,8
185/60 R14 82T	2,2	2,0	2,4	2,8
195/55 R15 85V	1,9	1,9	2,1	2,5



	half load front and rear		full load front and rear	
Engine identification letters BNM				
165/70 R14 81T	2,3	2,1	2,5	2,9
185/60 R14 82T	2,3	2,1	2,5	2,9
195/55 R15 85V	2,0	1,9	2,2	2,6

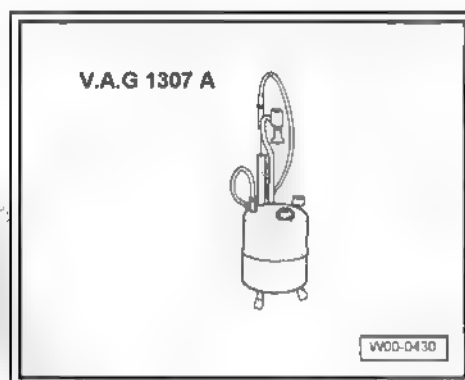
#### CrossFox

Engine identification letters BKR				
205/60 R15 91V	2,0	2,2	2,0	2,6
Engine identification letters BNM				
205/60 R15 91V	2,0	2,2	2,0	2,6
Engine identification letters BAH, BJA and BPA				
205/60 R15 91V	2,0	2,2	2,0	2,6

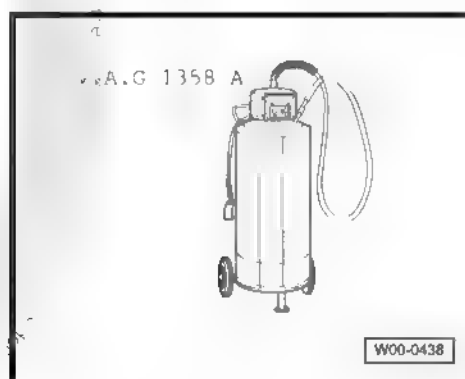
## 4.19 Engine oil - drain and fill; change the oil filter

Special tools and workshop equipment required

- ◆ Oil aspirator -VAG 1307 A-



- ◆ Oil aspirator -V.A.G 1358 A-







- ◆ Torque wrench - 5 to 50 Nm (fit. 1/2") -VAG 1331-

V.A.G 1331



W00-0427

Carry out work sequence as follows:

Engine identification letters BAH, BLH, and CFZA

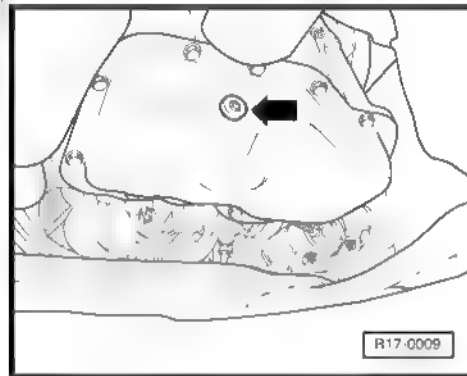
- Aspirate the engine oil with the Oil aspirator -VAG 1307 A- or Oil aspirator -VAG 1358 A-
- Remove the oil draining plug -arrow-.
- Remove the sealing ring from the oil draining plug and cut if necessary.
- Drain the engine oil.
- Tightening torque for the draining plug:

seta - 4-cylinder engines 30 Nm.



Note

- ◆ Please note that the tightening torque must not be exceeded. A very high tightening torque may lead to damage or even leaks in the oil draining plug area.
- ◆ Install a new sealing ring in the oil draining plug.



R17-0009



WARNING

- ◆ Follow the rules for disposal!

Engine identification letters AQZ, BKR, and BMD

- Aspirate the engine oil with the Oil aspirator - VAG 1307 A- or Oil aspirator -VAG 1358 A-

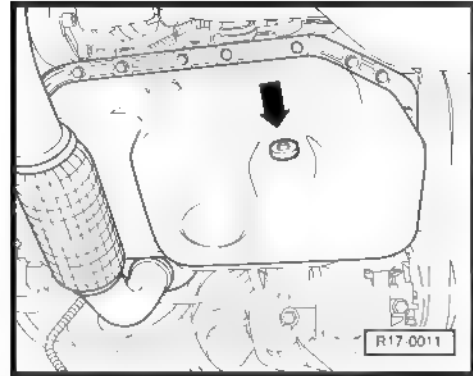


- Remove the oil draining plug -arrow-
- Remove the sealing ring from the oil draining plug and cut if necessary
- Drain the engine oil.
- Tightening torque for the draining plug:  
seta - 3- and 4-cylinder engines 30 Nm.



**WARNING**

- *In 3-cylinder petrol engines an oil drain plug with hexagonal interior and a oil drain plug sealing ring are used. With this type of plug, replace only the oil drain plug sealing ring⇒ Etkä .*



**Note**

- ◆ *Please note that the tightening torque must not be exceeded. A very high tightening torque may lead to damage or even leaks in the oil draining plug area.*
- ◆ *Install a new sealing ring in the oil draining plug.*



**WARNING**

- ◆ *Follow the rules for disposal!*

**Engine identification letters ASY**

- Aspirate the engine oil with the Oil aspirator - VAG 1307 A- or Oil aspirator -VAG 1358 A-

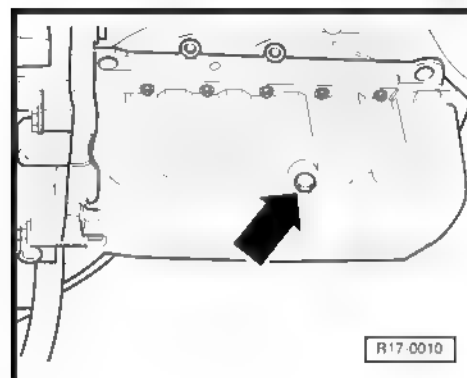


- Remove the oil draining plug -arrow-
- Remove the sealing ring from the oil draining plug and cut if necessary
- Drain the engine oil.
- Tightening torque for the draining plug:  
seta - 4-cylinder engines 30 Nm.



**Note**

- ◆ *Please note that the tightening torque must not be exceeded. A very high tightening torque may lead to damage or even leaks in the oil draining plug area*
- ◆ *Install a new sealing ring in the oil drainage plug*



**WARNING**

- ◆ *Follow the rules for disposal!*

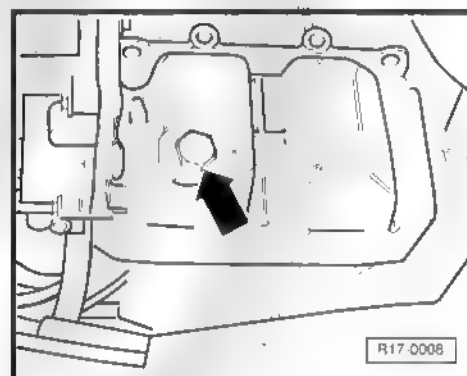
**Engine identification letters BNM**

- Aspirate the engine oil with the Oil aspirator - VAG 1307 A- or Oil aspirator -VAG 1358 A-
- Remove the oil draining plug -arrow-.
- Remove the sealing ring from the oil draining plug and cut if necessary.
- Drain the engine oil.
- Tightening torque for the draining plug:  
seta - 3-cylinder engines 30 Nm.



**Note**

- ◆ *Please note that the tightening torque must not be exceeded. A very high tightening torque may lead to damage or even leaks in the oil draining plug area.*
- ◆ *Install a new sealing ring in the oil drainage plug*



**WARNING**

- ◆ *Follow the rules for disposal!*

## 4.19.1 Replace the oil filter

**Special tools and workshop equipment required**

- ◆ Screwdriver -SW 30-
- ◆ Screwdriver -SW 36-

Carry out work sequence as follows:



Engine identification letters AQZ, BAH, BLH, BKR, and CFZA

- Loosen the filter through the hex section -arrow- with a Wrench -SW 30- and remove it.



**WARNING**

- ◆ *Follow the rules for disposal!*

- Clean the engine sealing surface.
- Lightly lubricate the new filter rubber sealing. With this, the filter is better seated and ideal sealing condition is achieved
- Install the filter and tighten it manually.

Engine identification letters ASY

Carry out work sequence as follows:

- Unscrew the sealing cover -1- with the Wrench -SW 36- and remove the cover with the filter.
- Remove the old filter from the fastening cover.



**Note**

*Make sure that no foreign object enters the filter case.*



**WARNING**

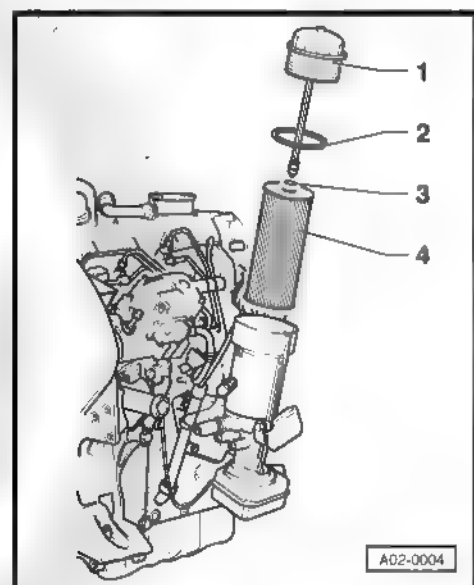
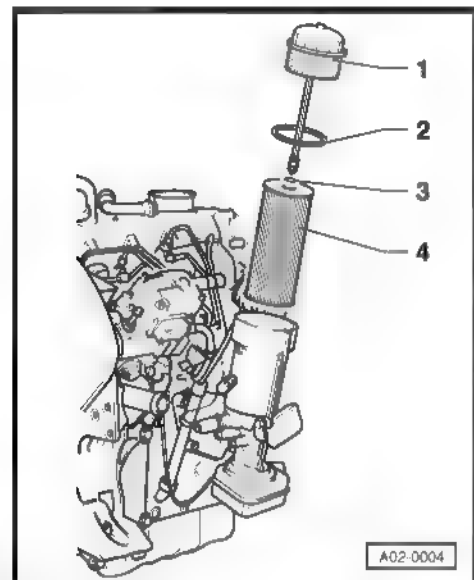
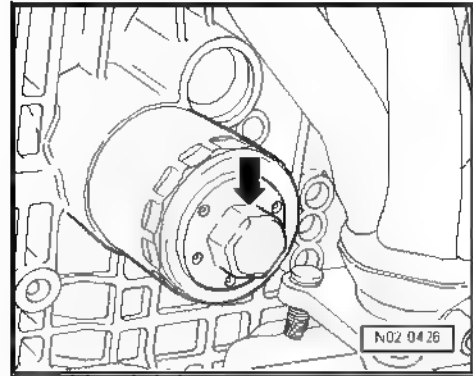
- ◆ *Follow the rules for disposal!*

- Replace the cover sealing ring -2-.
- Install the new filter.

- Install the fastening cover -1-.

Tightening torque in the fastening cover: 25 Nm.

Engine identification letters BNM



Special tools and workshop equipment required

- ◆ 36 mm wrench



- Loosen the filter through the hex section -arrow- with a 36 mm Wrench .



**WARNING**

◆ *Follow the rules for disposal!*

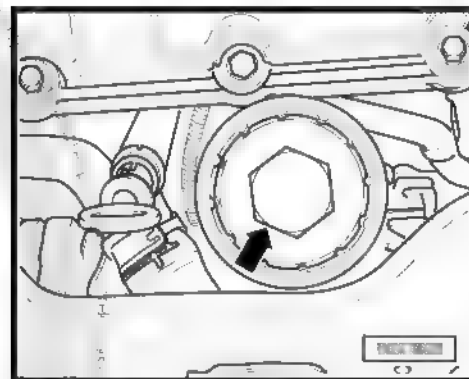
- Clean the engine sealing surface.
- Replace the sealing ring.
- Lightly lubricate the new filter rubber sealing. With this, the filter is better seated and ideal sealing condition is achieved.

Tightening torque for the filter: 25 Nm.

Engine identification letters BMD

Carry out the following work sequence:

- Loosen the cover -5- with a Wrench -SW 36- and remove the cover with the filter.
- Remove the filter -1-.
- Replace the cover sealing ring -4-.
- Replace the sealing rings -2- and -3-.

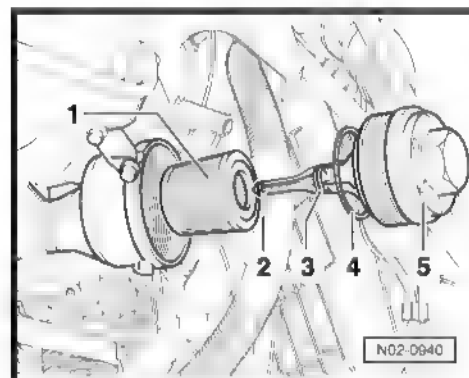


**WARNING**

◆ *Follow the rules for disposal!*

- Clean the engine sealing surface.
- Lightly lubricate the new filter rubber sealing. With this, the filter is better seated and ideal sealing condition is achieved.

Tightening torque: 25 Nm.



#### 4.19.2 Replenish the engine with oil

Based on the oil properties ⇒ [page 29](#) , use only the following approved engine oils:

#### 4.19.3 Oil specification for engine identification letters AQZ, BAH, BLH, BKR, BMD

- Vehicles with "service based on time and kilometers traveled" (QG0): VW 502 00.

#### 4.19.4 Oil specification for diesel engines with identification letters ASY

- Vehicles with "service based on time and kilometers traveled" (QG0): VW 505 00 or VW 505 01.

#### 4.19.5 Oil specification for diesel engines with identification letters BNM

- Vehicles with "service based on time and kilometers traveled" (QG0): VW 505 01.



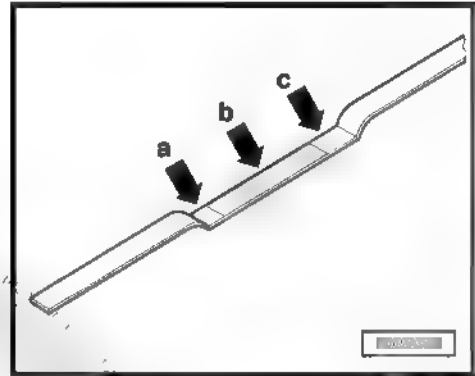
# **WARNING**

- ◆ *Follow the rules for disposal!*

- After replenishing the engine with oil, wait for at least 3 minutes and then check the level
- Pull the oil dipstick out, clean it with a clean cloth, and then push the oil dipstick in again up to the seat (stop).
- Pull the oil dipstick out again and check the oil level for the following conditions:

## Condition 1

- Area -a- Minimum marking region. Replenish the oil. It is sufficient for the oil level to be anywhere within area -b-.
- Area -b- It is not necessary to replenish the oil.
- Area -c- Maximum marking region. Oil cannot be replenished.



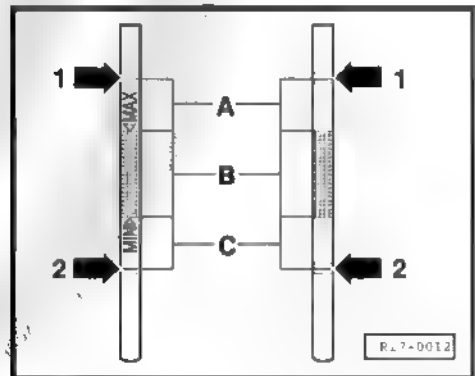
## Note

- ◆ *There is danger of damaging the catalytic converter when oil level is above area -c-*
  - ◆ *The oil level must be between the minimum and maximum markings. Make sure that the oil level does not exceed the maximum marking.*
- Pull the oil dipstick out again and check the oil level.

## Condition 2

- Area -A- Oil must not be replenished.
- Area -B- It is not necessary to replenish the oil.
- Area -C- Replenish the oil level. It is sufficient for the oil level to be anywhere within area -B-.
- Arrow -1- Maximum marking
- Arrow -2- Minimum marking

- Pull the oil dipstick out again and check the oil level.





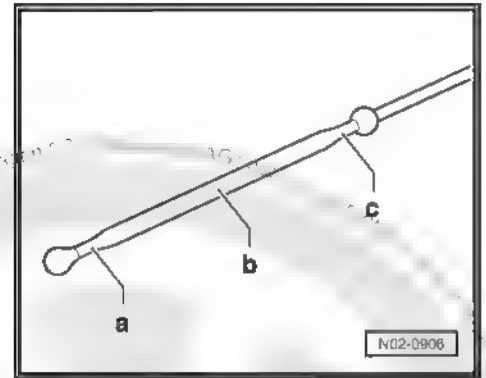


### Condition 3

- Area -a- Replenish the oil level. It is sufficient for the oil level to be anywhere within area -b-.
- Area -b- It is not necessary to replenish the oil.
- Area -c- The oil cannot be replenished

#### Note

- ◆ With the oil level below the minimum marking (area -a-), you must replenish the oil until it reaches the (area -b-) according to the oil specification. ⇒ [page 58](#)
- ◆ With the oil level above area -c- there is the risk of damaging the catalytic converter
- ◆ During oil changes, you must add oil until the maximum marking.



## 4.20 Engine and components in engine compartment (from above and below) - make a visual inspection for leaks and damage

The visual inspection must be carried out as follows:

- Check the engine and components in the engine compartment for leaks and damage.
- Check the cables, hoses and connections of the following systems for leaks, wearing, porosity and brittleness:
  - ◆ fuel supply system.
  - ◆ cooling and heating system.
  - ◆ brake system.

#### Note

- ◆ Make sure that all existing faults are properly eliminated during repair.
- ◆ In case of movement of brake fluid not caused by pad wearing, you must determine and eliminate the cause (repair measure).

## 4.21 Poly-V belt - check the condition

Carry out work sequence as follows:

- Lift the vehicle.

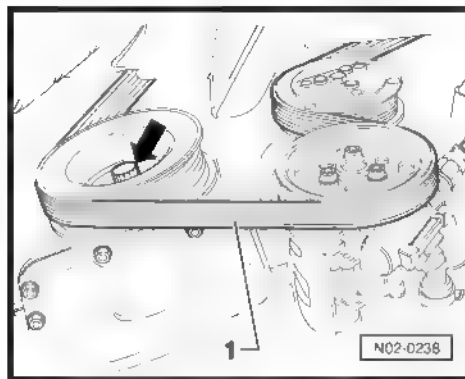


- Turn the engine at the belt shock absorber/pulley -arrow- with a socket wrench
- Check the Poly-V belt from below for:
  - ◆ Tears in the lower section (internal fractures, section fractures)
  - ◆ Layer separation (upper layer, cord strands)
  - ◆ Fracture at the lower section
  - ◆ Unthreaded cord strands.
  - ◆ Worn toothed sides (material wearing, unthreaded toothed sides, toothed side hardening -glassy toothed sides-, surface tears).
- Oil and grease residues.



#### Note

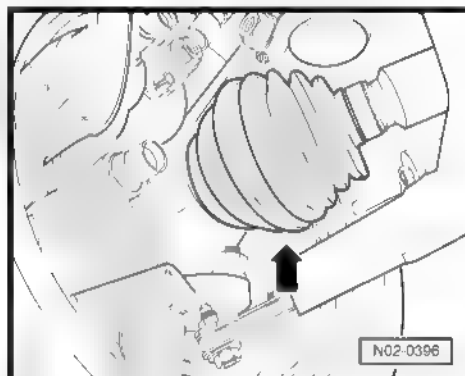
*If faults are verified, the Poly-V belt must be replaced. This will avoid failures and faults during operation. The Poly-V belt replacement is a repair measure.*



## 4.22 Constant velocity joint bellows - visual inspection

Carry out work sequence as follows:

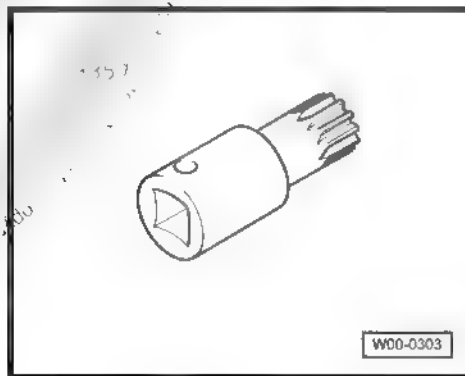
- Check the external joint bellows -arrow- and the internal joint bellows (not seen in the illustration) for leaks and damage.



## 4.23 Gearbox - check the oil level and replenish if necessary

Special tools and workshop equipment required

- ◆ Multi-teeth socket SW 27 -3357-





- ◆ Torque wrench - 5 to 50 Nm (fit. 1/2") -VAG 1331-

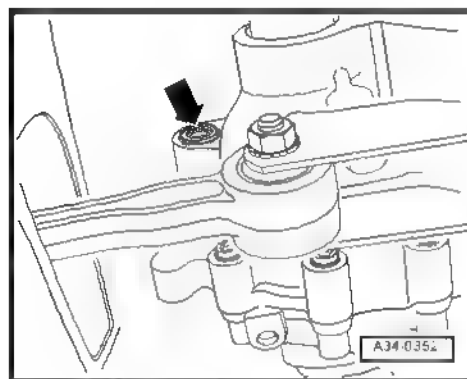
V.A.G 1331



W00 0427

#### 4.23.1 02T 5-gear transmission

- Remove the transmission oil filling plug -arrow-.
- The oil level is correct when the transmission is full up to the lower edge of the oil filling hole.
- Reinstall the plug and tighten it to 25 Nm.



#### 4.24 Brake system - visual inspection for damage and leaks

Check the following components for damage and leaks:

- ◆ Brake cylinder.
- ◆ Brake cylinder (in anti-blocking systems: Hydraulic unit).
- ◆ Braking force adjustment.
- ◆ Brake cylinder.
- Make sure that the brake system hoses are not twisted.
- Additionally, you must make sure that the brake system hoses do not touch vehicle components when the steering wheel is fully turned.
- Check the hoses for porosity and brittleness.
- Check the brake system hoses and pipes for wearing points
- Also check the brake system connections and fastenings for proper seating, leaks and corrosion.



#### WARNING

*The existing faults must be eliminated (repair measure).*

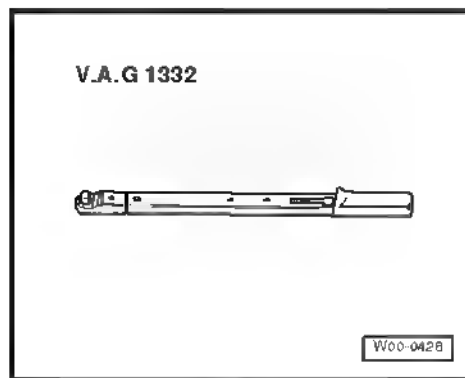
#### 4.25 Front brake pads - check the thickness

Special tools and workshop equipment required

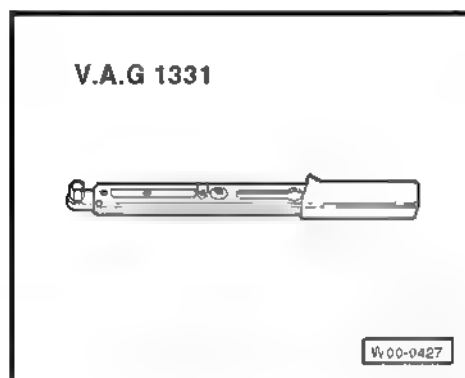




- ◆ Torque wrench - 40 to 200 Nm (enc. 1/2") -VAG 1332-



- ◆ Torque wrench - 5 to 50Nm (fit. 1/2") -VAG 1331-



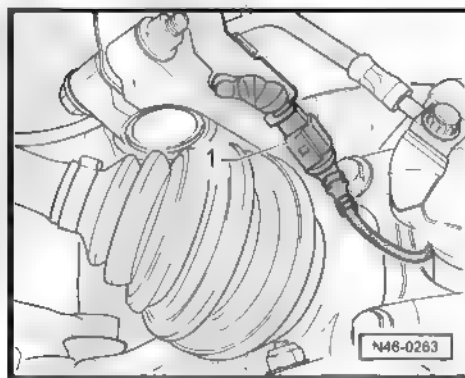
#### 4.25.1 Brake cylinder

Carry out work sequence as follows:

- For better evaluation of the remaining pad thickness, remove the driver side wheel (the wear is more intense than on the passenger side).
- Remove the hub cap/super hub cap.

The hook for removing the hub cap is in the tool kit.

- Loosen the wheel fastening screws and remove the wheel.
- For vehicles with brake pad wear indicator, disconnect the connector -1-.



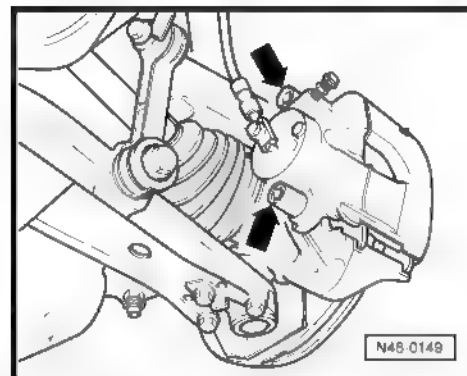


- Loosen the two screws -arrows- and remove the brake cylinder



#### WARNING

*Remove the brake cylinder and fasten it with wire so that its weight does not stress and damage the flexible brake pipe.*

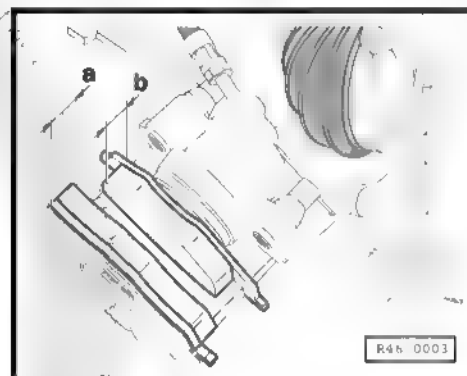


- Measure the internal and external pad thickness.
- External pad thickness including rear plate-a-.
- Internal pad thickness including rear plate-b-.
- Wear limit: 7 mm with the rear plate.

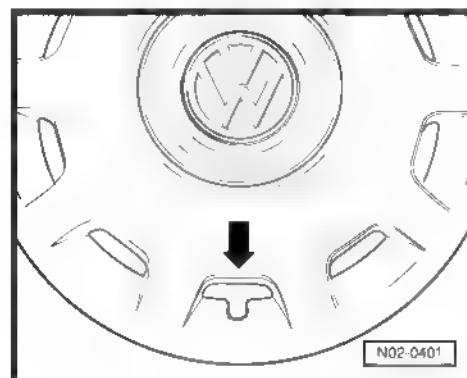


#### Note

- ◆ *For a pad thickness of 7 mm (including the rear plate), the brake pads have reached their wear limit and must be replaced (repair measure). The customer must be informed*
- ◆ *If the disc brake pads are replaced, you must also check the brake discs for wear! Checking and occasionally replacing the brake discs is a repair measure.*



- Installation is performed in the reverse process to the removal.
- The larger brake pad is installed on the outside! (FS II brake system).
- Torque the brake cylinder fastening screws to 25 Nm (FS II brake system).
- Torque the brake cylinder fastening screws to 30 Nm (FS III brake system).
- When installing the wheel, screw in the indicated position.
- Install the wheel fastening screws in a cross pattern and tighten them to 120 Nm.
- After completing the tasks, keep the hub cap/super hub cap removal hook with the tools.
- Install the super hub cap so that the tire inflation valve passes through the opening -arrow- for this purpose.



### 4.25.2 Brake disc - check the thickness

Please check the following

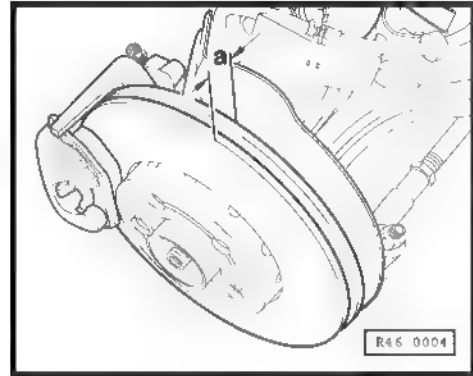


- Brake disc thickness 18 mm for FSII and 22 mm for FSIII-a-
- Wear limit 16 mm for FSII and 19 mm for FSIII



Note

*Always replace both discs from the same axle.*



#### 4.25.3 Brake disc with visual check - check



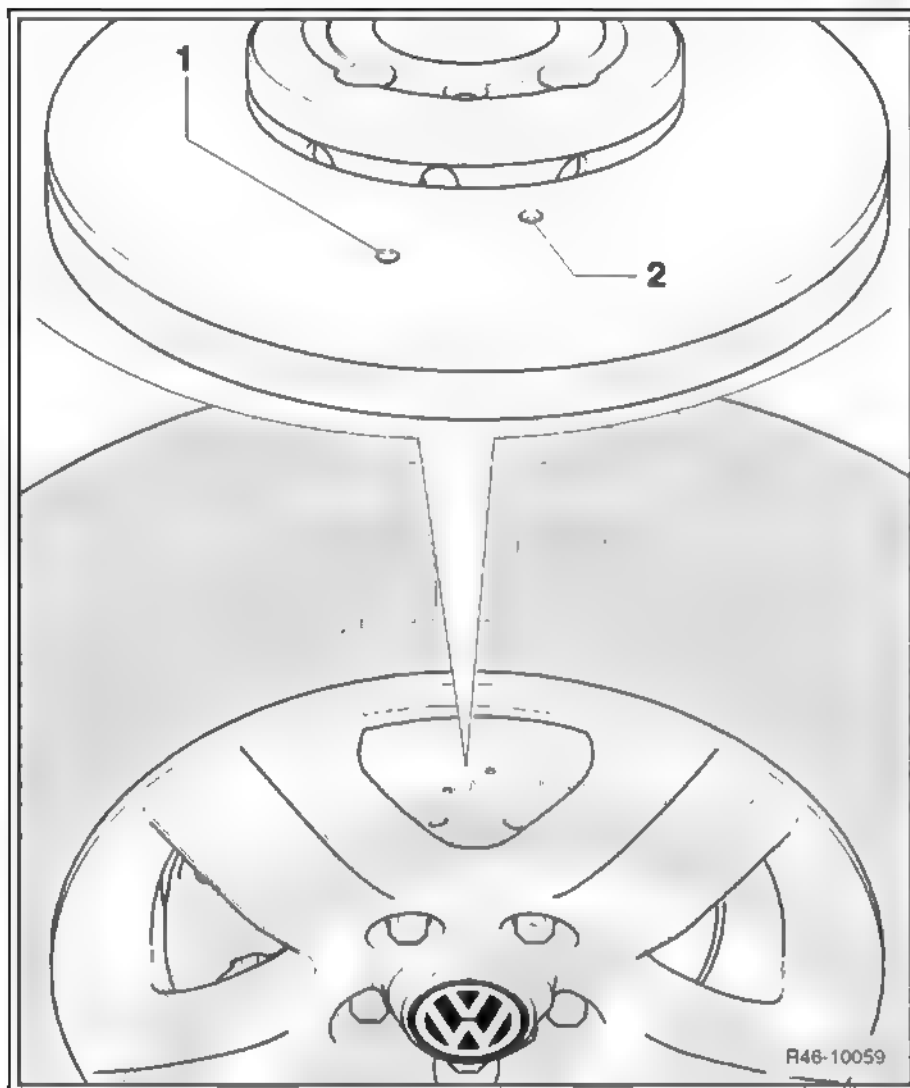
Note

- ♦ *The wear indicators on the front brake discs (visual check) indicate when the brake discs must be changed. This check is made by using the marks on the contact surface of the brake discs.*
- ♦ *Always check both discs on the same axle and, if necessary, replace them.*

#### 4.25.4 Vehicles with light-alloy wheel

Position the wheel so that the brake disc wear indicators (visual check) can be visualized.





- ◆ Wear indicator -1- is located on the centre of the brake disc contact area.
- ◆ Wear indicator -2- is located close to the internal edge of the brake disc.



#### Note

- ◆ *If the front brake disc wear indicator markings (visual check) cannot be visualized due to wheel design, the wheels must be removed.*
- ◆ *If the front wheels must be removed to check the brake discs, after reinstalling them, tighten the screws to 120 Nm*

#### Checking conditions of front brake disc wear:

- 1 - Wear indicators -1- and -2- are visible

The brake discs need not be replaced

- 2 - Only wear indicator -2- is visible

The brake discs do not require replacement, but be aware if the next change is close.

- 3 - No brake disc wear indicator is visible





Replace the brake discs

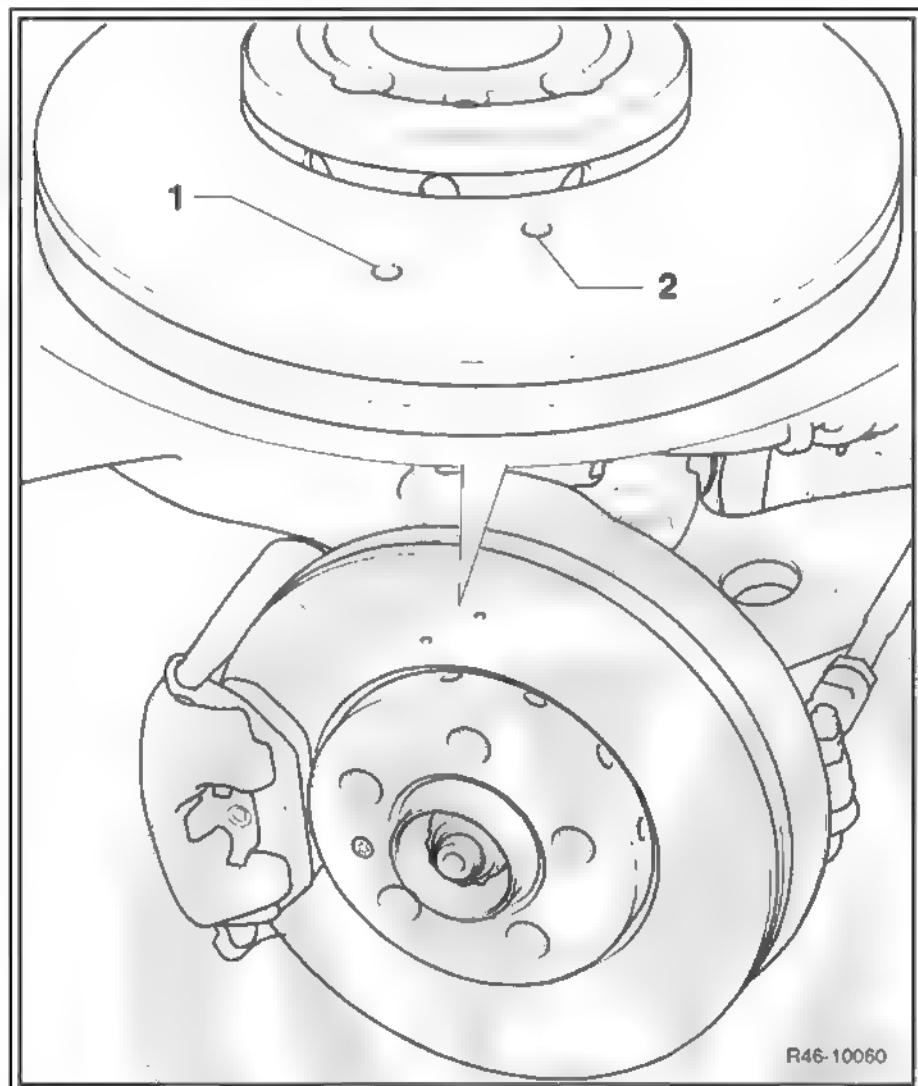
Remove and install the front brake discs

#### 4.25.5 Vehicles with steel wheel



##### Note

- ◆ *In order to visualize the brake disc wear indicators (visual check) in vehicles with steel wheels, the front wheels must be removed.*
- ◆ *After checking the brake discs, install the wheels and tighten fastening screws to 120 Nm.*



- ◆ Wear indicator -1- is located on the centre of the brake disc contact area
- ◆ Wear indicator -2- is located close to the internal edge of the brake disc

Checking conditions of front brake disc wear:

- 1 - Wear indicators -1- and -2- are visible





The brake discs need not be replaced

2 - Only wear indicator -2- is visible

The brake discs do not require replacement, but pay attention on the next change

3 - No brake disc wear indicator is visible

Replace the brake discs

Remove and install the front brake discs

#### 4.25.6 Rear brake lining: check thickness

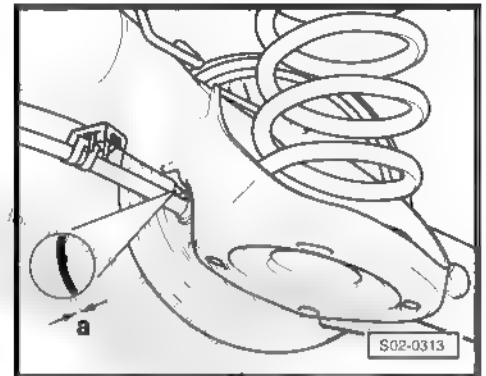
- Check the brake lining thickness through the inspection eye-let-a- or, for clearer verification, remove the rear brake drum⇒ Brake system; Rep. Gr. 46 ; Brakes - Mechanical systems .

Wear limit: 2.5 mm (lining thickness only) or rivet height.



#### WARNING

*If the wear limit has been reached, replace the linings (replacement measure). The client should be informed!⇒ Brake system; Rep. Gr. 46 ; Brakes - Mechanical systems*



#### 4.26 Lower body section protection - make a visual inspection for damage

During a visual inspection, you must check the floor, the wheel housing and the lower longitudinal members!



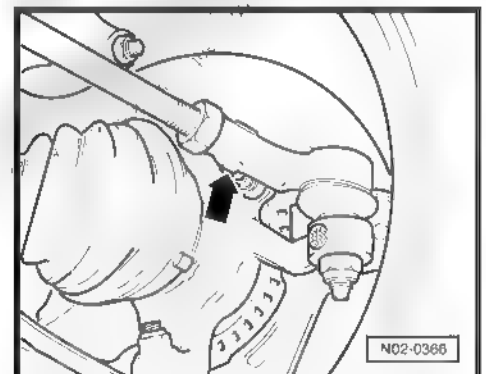
#### Note

*The existing faults must be eliminated (repair measure). This may prevent oxidation and perforating corrosion.*

#### 4.27 Steering bar tips - check clearance, fastening and sealing bellows

Carry out work sequence as follows:

- With the vehicle lifted (with wheels hanging freely), check the bars' side movements for clearances -arrow-.
- Check the fastening.
- Check the sealing bellows for damage and proper adjustment.

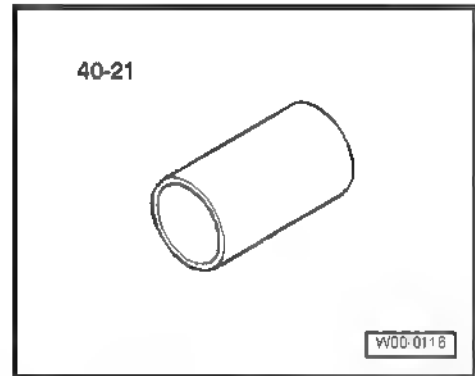




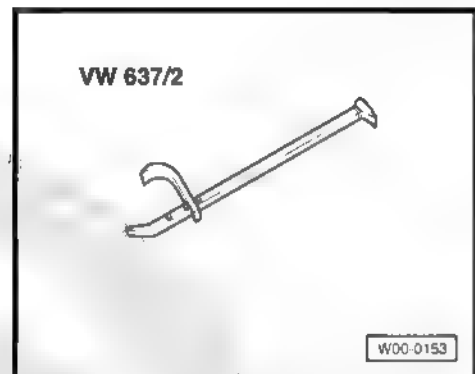
#### 4.28 Rear wheels: adjust the roller bearing clearance (only for vehicles without ABS and equipped with the engines: AQZ, BAH, ASY, BLH, and CFZA from 07/01/2007.

Special tools and workshop equipment required

- ◆ Supporting tube -40-21-



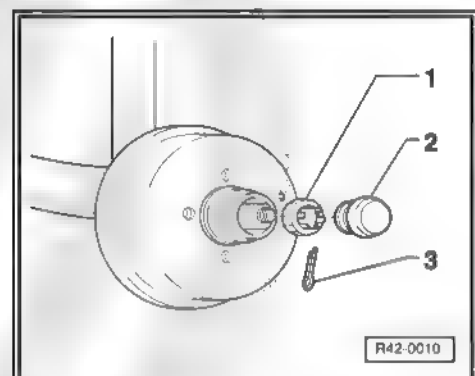
- ◆ Hub nut protector puller -VW 637/2- .



Rear wheel hub

- 1 - Ring gear.
- 2 - Wheel hub protector, must be replaced after removal.
- 3 - Cotter pin, must be replaced after removal.

Removal of the wheel is necessary only for vehicles with alloy rims.

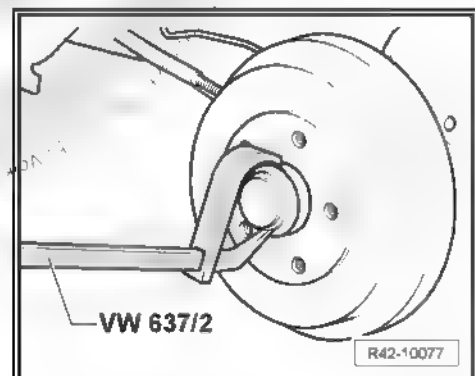


- Remove wheel hub protector -2-, with the extractor of the hub nut protectors -VW 637/2- .
- Remove cotter pin -3- and ring gear -1-



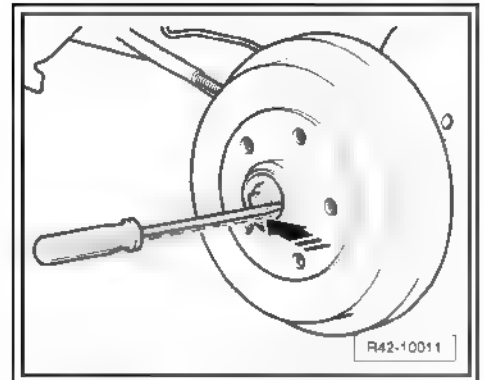
Caution

*It is necessary that the washer presents a radial motion exactly according to the following procedure.*





- Release or tighten nut by applying less or more pressure on the washer -arrow-, and simultaneously check its radial movement with light pressure of your index applied on a screwdriver



- Never turn -arrows- or leverage the screwdriver.

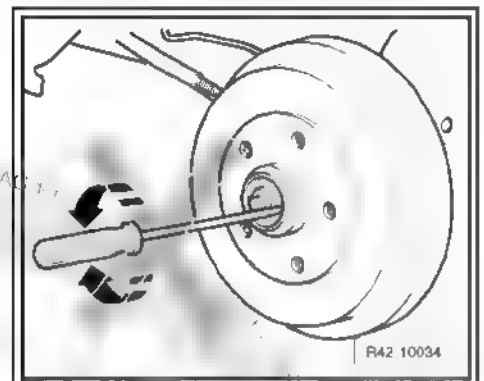


#### WARNING

*The screwdriver should touch only the washer and never the outer roller bearing of the wheel.*

*Never rotate or leverage with the screwdriver, assuring that the screwdriver does not touch the brake drum hub on no account.*

*If the notes above are not strictly followed, the adjustment of bearing end clearance will be jeopardized (it can lead to noises and breakage of bearings).*



- Install the ring gear in order to allow assembling the cotter pin.
- Check the regulation again.
- The washer must move radially with a slight pressure of your index applied on a screwdriver.



#### Note

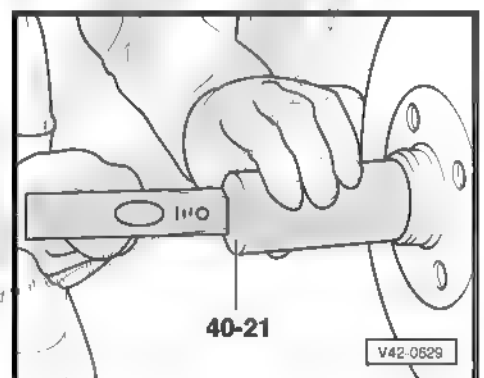
*After removed, the cotter pin must be replaced.*

- Install wheel hub protector with the Support tube -40-21-



#### Note

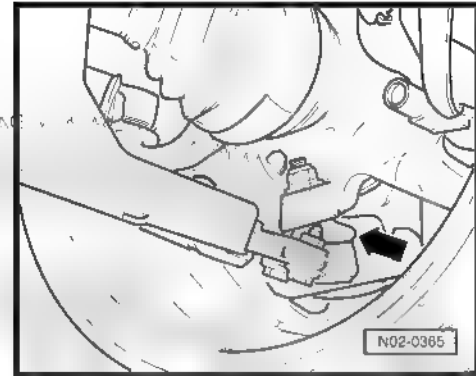
*The wheel hub cover must be replaced with every removal*





#### 4.29 Suspension arm joints - visual inspection

- Check the sealing bellows in the suspension arm joints  
-arrow- for damage and leaks



#### 4.30 Cooling system - check the antifreeze additive and the coolant level



##### Note

- ◆ All engines are supplied with radiator antifreeze additive and anti-corrosion G 12 - according to TL VW 774 F (lilac color). Make sure that only G 12 is replenished.
- ◆ Do not mix with the G 11 antifreeze additive, blue or green colors.



##### WARNING

The coolant additive G 12 cannot be mixed with other additives. When they are mixed, severe damage is caused to the engine. If a mix is detected (brown color), the coolant must be immediately replaced (repair measure).



##### Note

- ◆ The G 12 as permanent filling (does not require replacement) is adequate for cast iron and aluminum engines, and protects the engine against freezing, damage from corrosion, lime-stone build-up and overheating.
- ◆ The G 12 raises the boiling point to 275°F and provides better heat dissipation.
- ◆ The coolant ratio must be at least 40% (antifreeze protection to - 77°F) and it must not exceed 60% (antifreeze protection to - 104°F), otherwise the antifreeze protection is reduced and also the cooling operation is worsened.

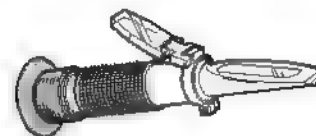
#### 4.30.1 Check the antifreeze protection and replenish the cooling system, if necessary

Special tools and workshop equipment required



- ◆ Refractometer for cooling system liquid analysis -EQ 7093 (VWB) - ou - T 10007-

T10007



W00-0689



#### Note

The exact value for the following checks may be read in the light-dark limit. To better see the light-dark limit, use a dropper/pipette to put a water drop on the glass. Now the light-dark limit may be easily recognized by the "WATERLINE".

- Check the concentration of antifreeze additive with the Refractometer for cooling system fluid analysis -EQ 7093 (VWB) - ou - T 10007- (follow the instruction manual).

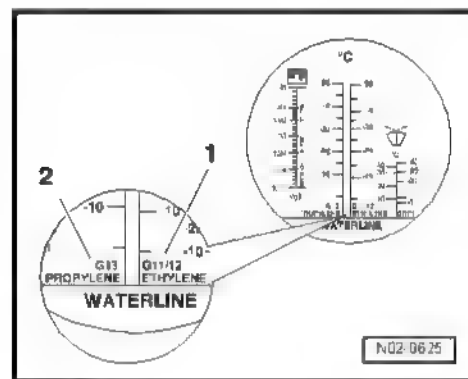
The scale -1- of the refractometer is related to coolant additives - G 12- and -G 11-.

The scale -2- is related to the cooling additive -G 13-.



#### Note

- ◆ The antifreeze protection must be guaranteed in approximately  $-13^{\circ}\text{F}$  (in Arctic climate countries in approximately  $-31.00^{\circ}\text{F}$ ).
- ◆ Due to climatic reasons, a higher antifreeze protection is necessary, so the percentage of G 12 may be increased, but only up to 60% (antifreeze protection to approximately  $-40^{\circ}\text{F}$ ), because the antifreeze protection can be reduced again and, additionally, the cooling action is worsened.
- When the antifreeze protection is too weak, drain the difference volume mentioned in the antifreeze protection table [⇒ page 77](#) and replace with the cooling additive -G 12- according to TL VW 774 F.



N02-0625



#### WARNING

- ◆ Follow the rules for disposal!

### 4.30.2 Antifreeze table

Antifreeze protection up to ° F		Difference quantity in liters <sup>14)</sup>	
Actual value <sup>12)</sup>	Nominal value <sup>13)</sup>		
-5	-25		3,0
	-35		3,5
	-25		2,5
	-35		3,5



Antifreeze protection up to ° F		Difference quantity in liters <sup>14)</sup>
Actual value <sup>12)</sup>	Nominal value <sup>13)</sup>	
-10	-25	2,0
	-35	3,0
-15	-25	2,5
	-35	2,5
-20	-25	1,0
	-35	2,5
-25	-35	2,0
-30	-35	1,0
-35	-40	0,5

12) Actual value: It is the result achieved when measuring the concentration of coolant on the measured vehicle

13) Nominal value: Is the value applied to the locality where the vehicle is being used. For example, in Brazil, the nominal value is -25° C; in arctic countries, the value is -35° C.

14) Difference quantity in liters: Is the amount removed from the cooling system and replenished in the same quantity only with additive.

- After the test run, you must check the antifreeze additive concentration in the cooling system again.

#### 4.30.3 Check the coolant level and, if necessary, replenish the cooling system

- Check the coolant level in the reservoir with the cold engine.
- ♦ **Delivery inspection:** With cold engine, the coolant level must be in the middle area between the maximum and minimum reservoir markings. If it is above the middle area, remove the excess until it reaches the level in the middle area between the maximum and minimum reservoir markings. With the heated engine, the coolant may reach the maximum reservoir marking.
- ♦ **Inspection service:** With cold engine, the coolant level can be between the reservoir maximum marking and middle area. If it is above the middle area, remove the excess until it reaches the level in the middle area between the maximum and minimum reservoir markings. With the heated engine, the coolant may reach the maximum reservoir marking.
- If during the inspection service the coolant level is below the minimum level marking, it is necessary to replenish the system according to the specified mixture ratio until the middle area between the maximum and minimum reservoir markings.



#### Note

*In case of loss of fluid not caused by consumption, you must determine and eliminate the cause (repair measure).*

#### 4.30.4 Mixture ratio

Antifreeze protection up to	Coolant additive	Water
-13.00 ?	approx. 40%	approx. 60 %
-31.00 ?	approx. 50 %	approx. 50 %
-40.00 ?	approx. 60 %	approx. 40%



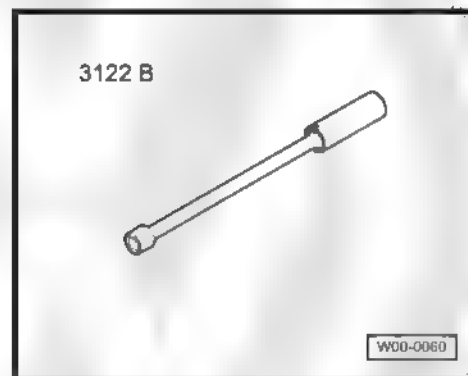
#### Note

- ◆ *The coolant additive -G12- prevents damage from corrosion and freezing, limestone build-up and also increases the boiling point. For these reasons, the cooling system must always be replenished with antifreeze and anti-corrosion agent throughout the year.*
- ◆ *Specially in tropical countries, the coolant ensures the engine operation by increasing the boiling point under high engine charges.*
- ◆ *The concentration of coolant cannot be diluted in water, even during hot seasons or in hot countries. The cooling additive percentage must be at least 40%.*

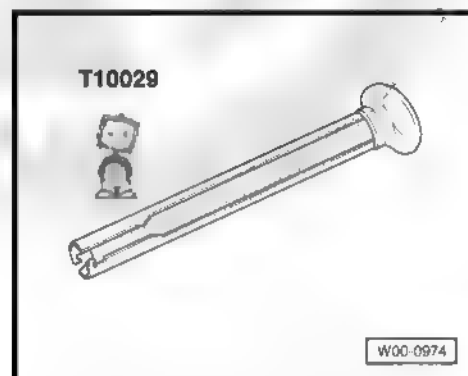
### 4.31 Spark plugs - replace

Special tools and workshop equipment required

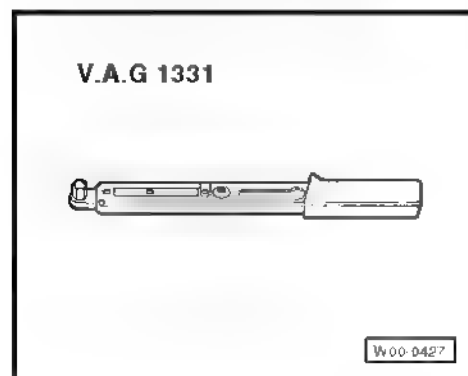
- ◆ Spark plug wrench -3122B-



- ◆ Assembly tool -T10029-



- ◆ Torque wrench - 5 to 50 Nm (fit. 1/2") -VAG 1331-





#### 4.31.1 Engine identification letters BAH and BLH

- Remove the crankcase air vent hose -1- from the air filter case
- Remove the air filter case from the supports and the butterfly valve command unit -arrows- and remove the air filter case

Carry out work sequence as follows:

- Loosen the spark plug connectors -arrows- with the Assembly tool -T10029- .
- Remove the spark plugs with the Spark plug wrench -3122B- .
- Install the new spark plugs with the Spark plug wrench -3122B- and the Torque wrench - 5 to 50 Nm (enc. 1/2") -VAG 1331- .

Tightening torque: 30 Nm.



#### Note

- ♦ The air filter case assembly is initially carried out by fitting the butterfly valve command unit nozzle, side supports, and then the front supports.
- ♦ Apply neutral soap or coolant additive to the fastening bearings and to the butterfly valve control unit nozzle packing for easier installation.



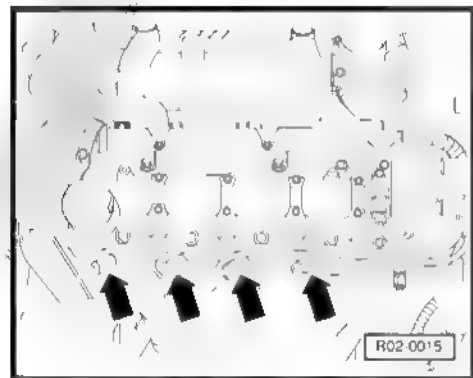
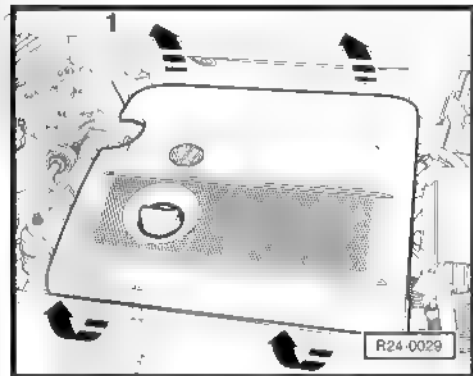
#### WARNING

- ♦ Follow the rules for disposal!

- Connect the spark plug connectors.
- Install the air filter case.

#### 4.31.2 Engine identification letters AQZ and BKR

- Remove the crankcase venting hose -1- from the air filter case.

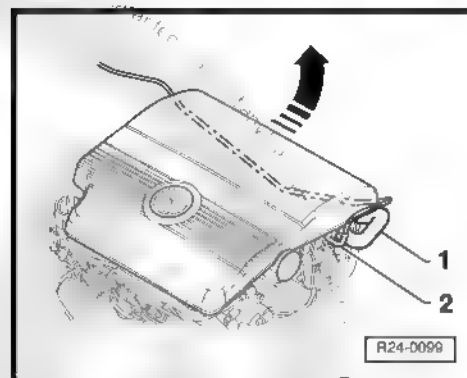






- First, remove the air filter case from its supports and the butterfly valve command unit and, then, from the front supports -arrow-

Carry out work sequence as follows:



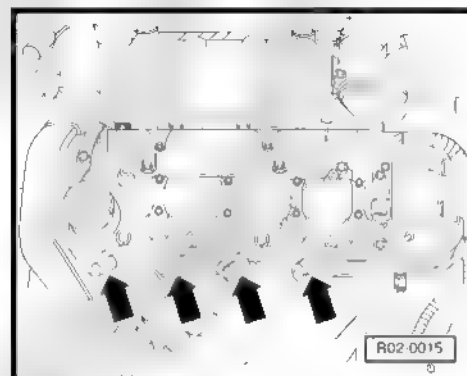
- Remove the spark plug connectors -arrows- with the Assembly tool -T10029-.
- Remove the spark plugs with the Spark plug wrench -3122B-.
- Install the new spark plugs with the Spark plug wrench -3122B- and the Torque wrench - 5 to 50 Nm (enc. 1/2") -VAG 1331-.

Tightening torque: 30 Nm.



#### Note

- ◆ The air filter case assembly is initially carried out by fitting the butterfly valve command unit nozzle, side supports, and then the front supports.
- ◆ Apply neutral soap or coolant additive to the fastening bearings and to the butterfly valve control unit nozzle packing for easier installation.



#### WARNING

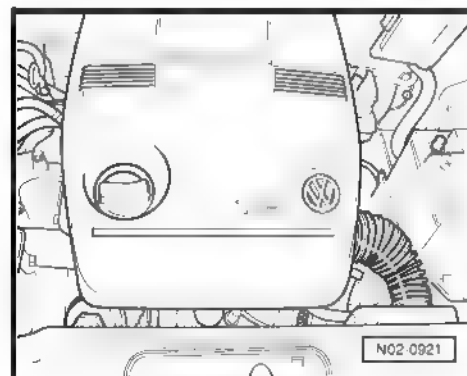
- ◆ Follow the rules for disposal!

- Connect the spark plug connectors.
- Install the engine cover.

### 4.31.3 Engine identification letters BMD

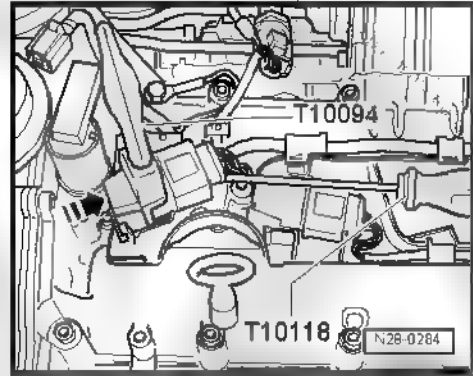
Carry out work sequence as follows:

- Disengage and pull the engine cover up, when applicable.





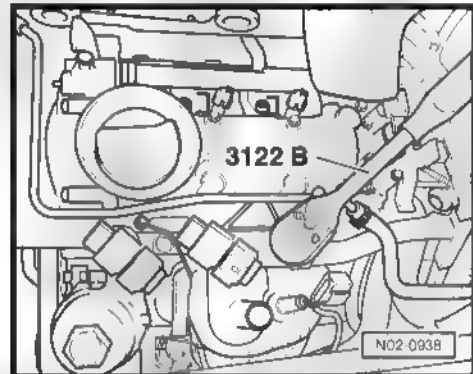
- Install the Extractor -T10094- over the ignition coil with final power stage.-arrow-
- Remove the ignition coil with the final power stage a little outwards
- Install the Hook -T10118- as illustrated
- Unlock the connector block carefully and remove the connector.



- Remove the spark plugs with the Spark plug wrench -3122B-.
- Install the new spark plugs with the Spark plug wrench -3122B- and the Torque wrench - 5 to 50 Nm (enc. 1/2") -VAG 1331-.

Tightening torque: 30 Nm.

- Install the Extractor -T10094- over the ignition coil with final power stage.
- Connect the connector to the ignition coil with final power stage until fitting it audibly.

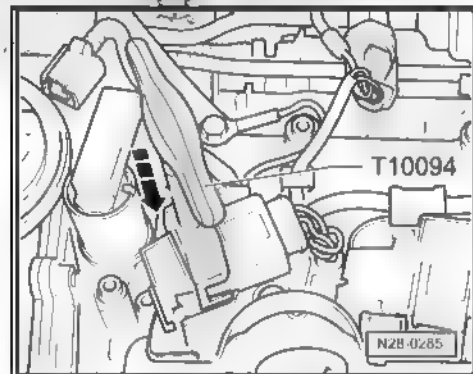


- Install the ignition coil with final power stage in the -arrow- direction on the engine cylinder head.

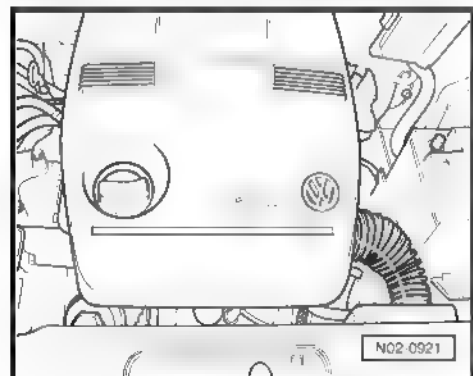


#### WARNING

- ◆ Follow the rules for disposal!



- Install the engine cover, when applicable.



## 4.32 ATF oil reservoir for power steering - replenish the level

Carry out work sequence as follows:

Oil in cold condition:

- The engine must be turned off and the front wheels, aligned.

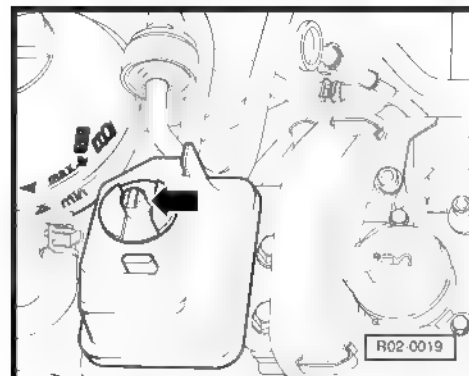


- Remove the cover with a screwdriver -arrow-.
- Clean the oil dipstick with a clean cloth.
- Manually install the cover and remove it again.



**Note**

*The oil level inspection must only be considered in the second measurement.*

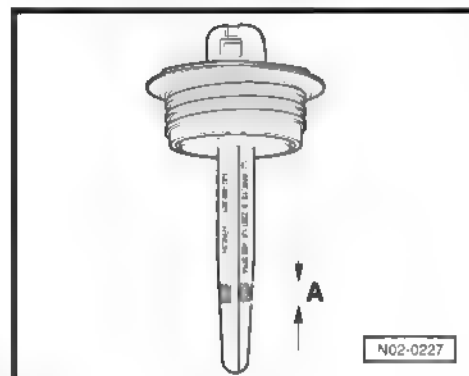


- Check oil level: the level must be in region -A-.



**Note**

- ◆ If the oil level is above region -A-, drain the exceeding oil.
- ◆ If the oil level is below region -A-, you must check the hydraulic system for possible leaks (repair measure), it is not enough to just replenish the level.
- ◆ If the hydraulic system is leak proof, for Brazil, fill only with oil -325 029 901 1-. For other countries, when filling, you must pay attention to the oil color, red oil -325 029 901 1- or yellow oil -G 002 000-.



- Install the cover with a screwdriver.

Oil at service temperature (from approximately 50°C):

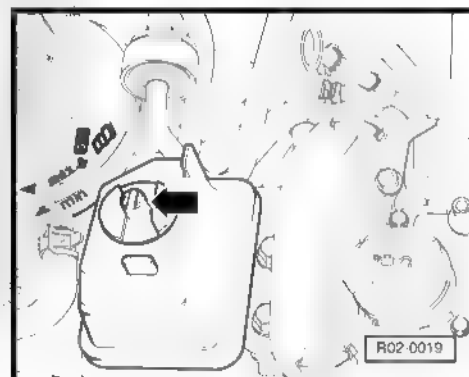
The engine must be turned off and the front wheels, aligned.

- Remove the cover with a screwdriver -arrow-.
- Clean the oil dipstick with a clean cloth.
- Manually install the cover and remove it again.



**Note**

*The oil level inspection must only be considered in the second measurement.*





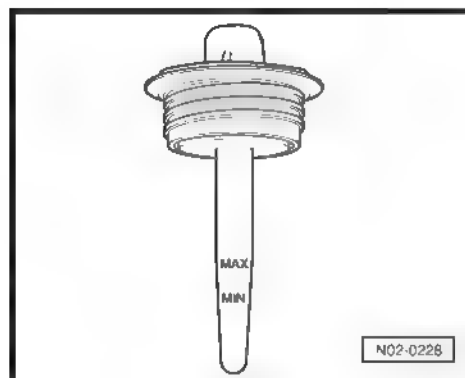
- Check oil level: the oil level must be between the -MIN- and -MAX- marks



#### Note

- ◆ If the oil level is above the -MAX- mark, you must drain the oil.
- ◆ If the oil level is below the -MIN- mark, you must check the hydraulic system for possible leaks (repair measure), it is not enough to just replenish with oil
- ◆ If the hydraulic system is leak proof, for Brazil, fill only with oil -325 029 901 1-. For other countries, when filling, you must pay attention to the oil color, red oil -325 029 901 1- or yellow oil -G 002 000-

- Install the cover with a screwdriver.



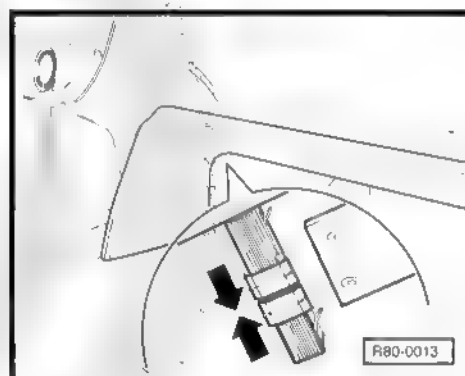
### 4.33 Dust and pollen filter - replace the filter element

The filter is in the ventilation case, at the right of the instrument panel, below the glove compartment.

#### 4.33.1 Behr box

Carry out the following work sequence:

- Join the two sliding locks -arrows- up to the centre.

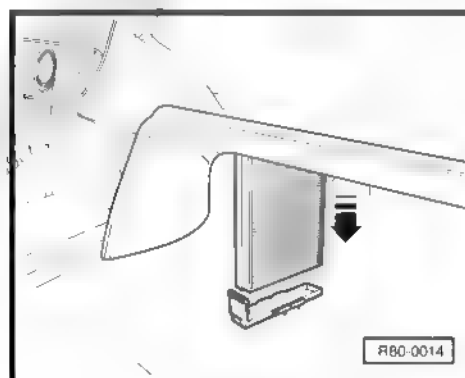


- Remove the dust and pollen filter -arrow- with the filter support.
- Separate the filter from its support.

**WARNING**

◆ Follow the rules for disposal!

- Installation is performed in the reverse sequence to the removal.

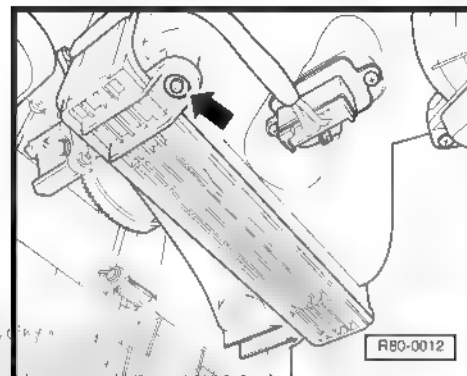


#### 4.33.2 Denso box

Carry out the following work sequence:



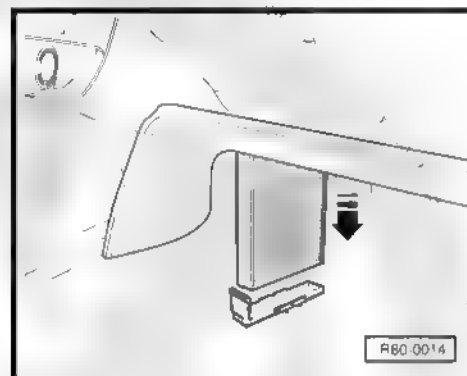
- Loosen the filter compartment cover screw-arrow-.



- Remove the dust and pollen filter -arrow- with the filter support.
- Separate the filter from its support.

**⚠ WARNING**

◆ *Follow the rules for disposal!*



- Installation is performed in the reverse sequence to the removal.

#### 4.34 Timing belt - replace; Semi-automatic camshaft tensioning pulley - check

##### 4.34.1 Engine identification letters ASY

- Carry out the work sequence ⇒ Engine; Rep. Gr. 15 ; Cylinder head, camshaft mechanism .

##### 4.34.2 Engine identification letters BNM

- Carry out the work sequence ⇒ Engine; Rep. Gr. 15 ; Cylinder head, camshaft mechanism .



#### 4.35 Camshaft activation timing belt - check

##### 4.35.1 Engine identification letters AQZ, BAH, BLH, BKR, BMD, and CFZA

- Remove the upper mechanical distribution cover
- Check the timing belt condition for
  - ◆ Tears, section fractures
  - ◆ Layer separation (timing belt body, cord strands)
  - ◆ Fracture in the timing belt body
  - ◆ Unthreaded cord strands.
  - ◆ Surface tears (plastic coating)
  - ◆ Oil and grease residues

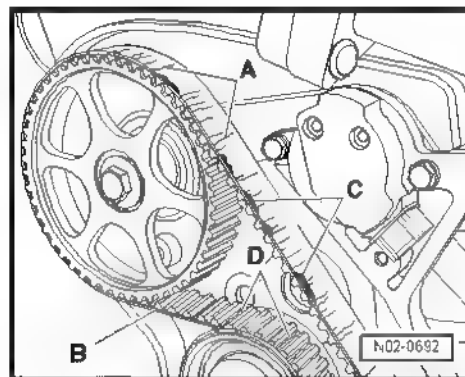


## Note

*If there are faults, you must replace the timing belt. This will avoid failures and faults during operation.*

When checking the timing belt condition, pay special attention to the following damage:

- A - Tears (on the cover side).
- B - Side wearing.
- C - Unthreading.
- D - Tears (at the teeth base)

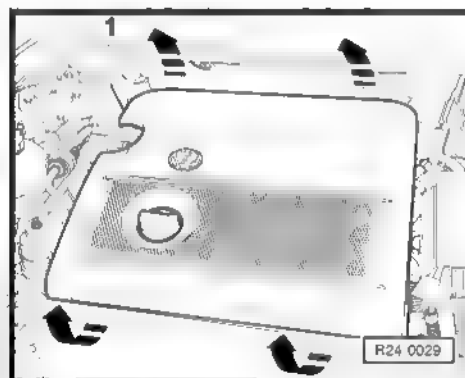


## 4.36 Air filter - clean the case and replace the filter element

### 4.36.1 Engine identification letters BAH and BLH

Carry out work sequence as follows:

- Remove the crankcase air vent hose -1- from the air filter case.
- Remove the air filter case from the supports and the Butterfly valve command unit from the accelerator -J338- -arrows- and remove the air filter case.



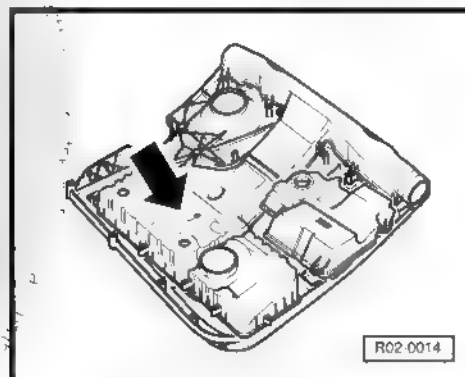
- Remove the air filter case fastening screws -arrow-.
- Remove the filtering element.



## WARNING

- ◆ Follow the rules for disposal!

- Clean the filter's case and install a new filtering element.
- The installation is performed in the reverse order from removal.



### 4.36.2 Engine identification letters AQZ and BKR

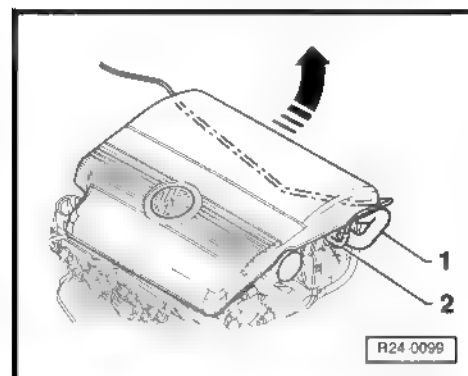
Carry out work sequence as follows:





Remove the crankcase venting hose -1- from the air filter case

First, remove the air filter case from its supports and the butterfly valve command unit and, then, from the front supports -arrow-.



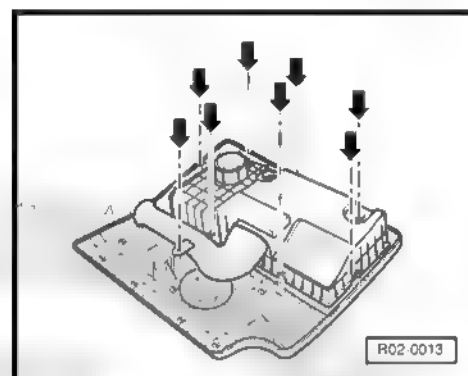
- Remove the air filter case fastening screws -arrows-.
- Remove the filtering element.



**WARNING**

♦ *Follow the rules for disposal!*

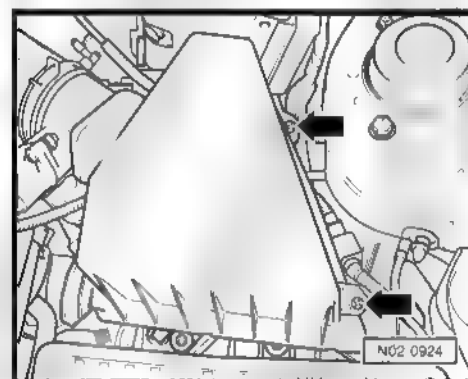
- Clean the filter's case and install a new filtering element.
- The installation is performed in the reverse order from removal.



#### 4.36.3 Engine Identification letters ASY, BNM, BMD, and CFZA

Carry out work sequence as follows:

- Loosen the screws -arrows- and remove the air filter cover.
- Clean the filter's case and install a new filtering element.
- The installation is performed in the reverse order from removal.



#### 4.37 Fuel filter - replace

##### 4.37.1 Engine identification letters AQZ, BAH, BLH, and CFZA

⇒ Engine - Supply and ignition system; Rep Gr. 20 , Supply system - reservoir, fuel pump





## 4.37.2 Engine identification letters ASY



### Note

- ◆ *Make sure that the fuel does not reach the cooling system hoses. If necessary, clean the hoses immediately!*
- ◆ *Do not dispose of the fuel filter with fuel inside.*
- ◆ *Comply with the waste disposal standards!*

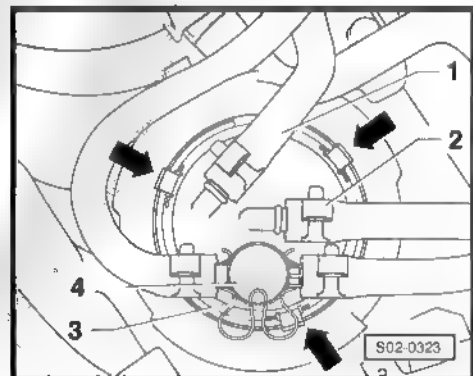
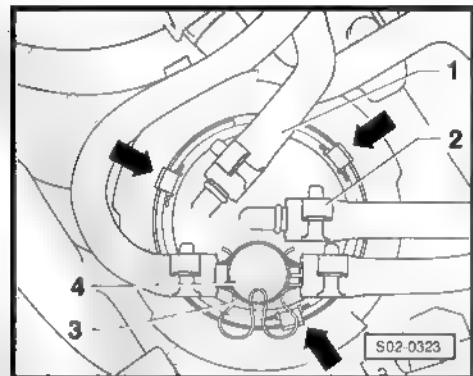
Carry out work sequence as follows:

### Removal

- Remove the fastening clip -3- and remove the regulating valve -4- with the fuel ducts connected
- Disconnect the fuel hoses -1- and -2-
- Unlock the -arrows- hooks
- Remove the fuel filter cover upwards.

### Installing

- Fill the new filter with new diesel fuel. Thus, the engine works faster.
- Install the new sealing ring to seal the regulating valve.
- Install the filter.
- Lock the -arrows- small hooks.
- Assemble the regulating valve -4- with the ducts connected.
- Install the fastening hook -3-.
- Install the fuel hoses -1- and -2- and lock with hose clamps.



### Note

*The fuel flow direction is marked by -arrows-: (Do not invert the connections).*



## 4.37.3 Engine identification letters BNM



### Note

- ◆ *Make sure that the fuel does not reach the cooling system hoses. If necessary, clean the hoses immediately!*
- ◆ *Do not dispose of the fuel filter with fuel inside.*
- ◆ *Comply with the waste disposal standards!*

Carry out work sequence as follows:



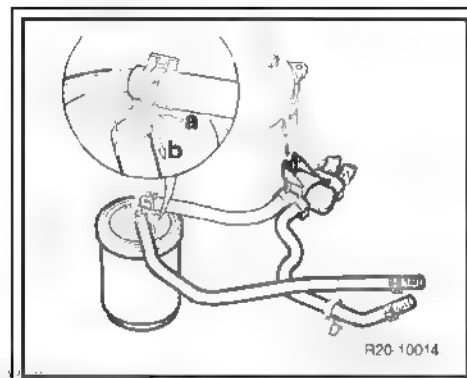


## Removal

- Remove the intake-a- and outlet-b- hose clamps from the filter with the Spring clamp pliers -VAS 5024 A- .
- Remove the hoses
- Move the filter up and remove it

## Installing

- Fill the new filter with new diesel fuel. Thus, the engine works faster.
- Install the filter.
- Install the filter intake -a- and outlet-b- hoses and, then, the clamps with the help of the Spring clamp pliers -VAS 5024 A-



## 4.38 Fuel filter - drain

### 4.38.1 Engine identification letters ASY



#### Note

*Make sure that no diesel fuel reaches the coolant hoses. If necessary, clean the hoses immediately!*

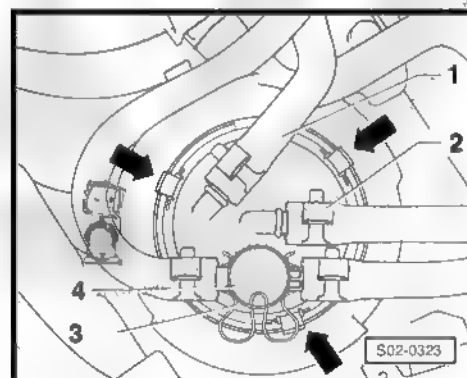


#### WARNING

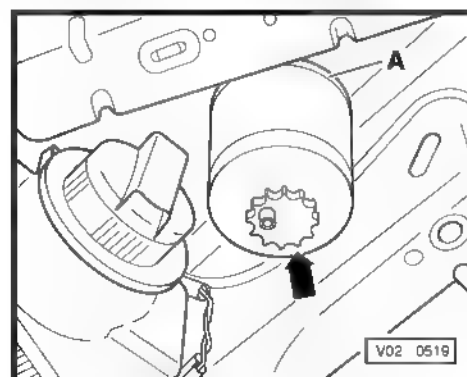
♦ *Follow the rules for disposal!*

Carry out work sequence as follows:

- Remove the fastening clip -3- and remove the regulating valve -4- with the fuel ducts connected.
- Install the hose to the draining screw connection coupling -arrow-, open the screw and drain approximately 0.1 liter.
- Tighten the draining screw -arrow- and remove the hose.

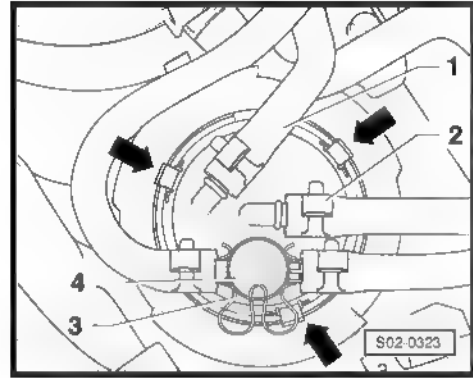


- Install the new sealing ring to seal the regulating valve.
- Install the regulating valve -4- and put the fastening clip -3-





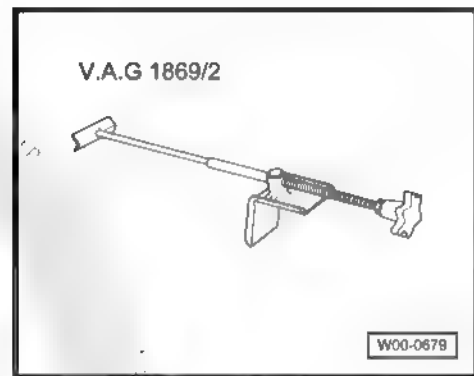
- Check the fuel system tightness (visual inspection).



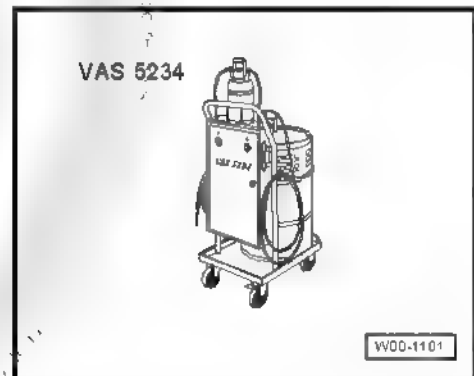
#### 4.39 Brake fluid - replace

Special tools and workshop equipment required

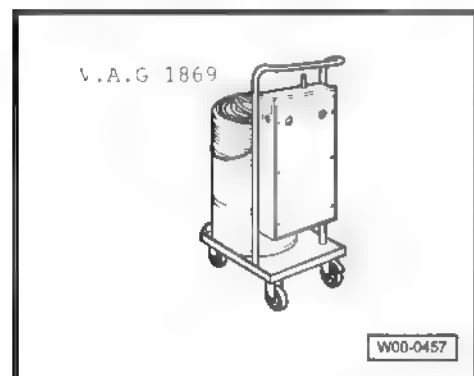
- ◆ Brake pedal pressing device -VAG 1869/2-



- ◆ Brake filler and bleeder -VAS 5234-



- ◆ Brake bleeding device -VAG 1869-



- ◆ Brake bleeding device -V.A.G 1869- with Adapter -V.A.G 1869/4-

Use new brake fluid only (which corresponds to the American US FMVSS 116 DOT 4 standard)



Authorized brake fluid specifications in vehicles from model until year 2005:

- ◆ Brake fluid corresponds to the USA rule FMVSS 116 DOT 4 (brake fluid used up to the date)
- ◆ Brake fluid corresponds to the VW rule, VW 501 14 (new brake fluid)

Authorized brake fluid specification in vehicles from model after year 2006:

- ◆ Brake fluid corresponds to the VW rule, VW 501 14 (new brake fluid).



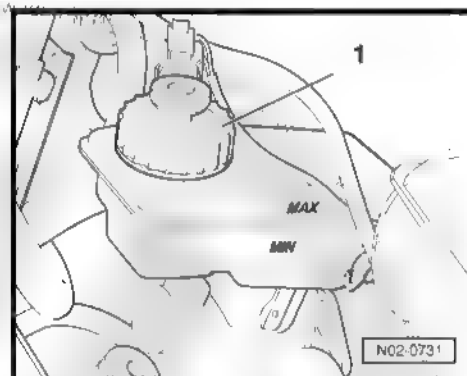
#### WARNING

- ◆ *Do not let the brake fluid contact fluids containing mineral oils (oil, petrol, cleaning materials). Mineral oils damage the sealing and the brake system hoses.*
- ◆ *The brake fluid is toxic. Due to its acidic properties it should not come into contact with painted surfaces.*
- ◆ *The brake fluid is hygroscopic, that is, it absorbs the local air humidity and, for this reason, it is stored in airtight packages.*
- ◆ *Wash off any brake fluid spillage with plenty of water.*
- ◆ *Follow the rules for disposal!*

Carry out the following work sequence:

Observe the work instructions for Brake filler and bleeder -VAS 5234- and Brake bleeding device - VAG 1869- .

- Remove the cover -1- from the brake fluid reservoir.



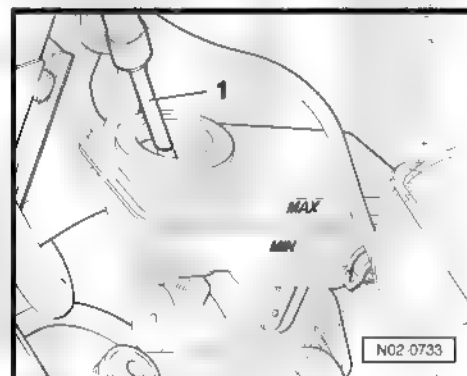
- Aspirate with a hose from the Brake filler and bleeder -VAS 5234- -1-, or Brake bleeding device -VAG 1869- or with an aspiration bottle with filter removing as much brake fluid as possible.



#### Note

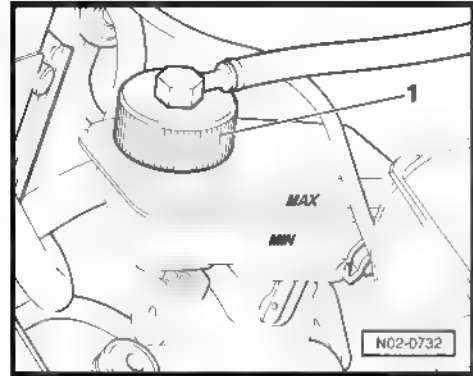
*Do not reuse the (used) aspirated brake fluid.*

- Install the Brake pedal's tensioning element -VAG 1869/2- between the driver's seat and the brake pedal, pressing it.





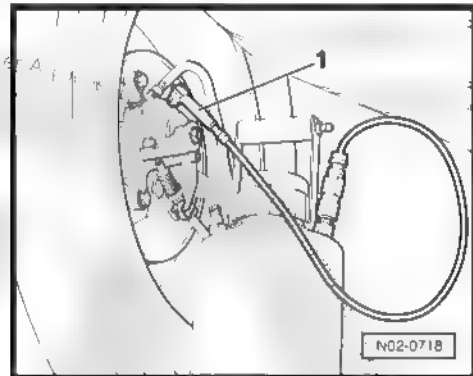
- Connect the adapter -1- to the brake fluid reservoir
- Connect the hose from the Brake filler and bleeder -VAS 5234- or the Brake bleeding device - VAG 1869- to the adapter
- Remove the protection covers in the bleeding screws.
- Position the venting hose -1- of the draining bottle in the rear section of the bleeding screw, loosen the bleeding screw and drain a corresponding quantity of brake fluid (check the table below).



- Tighten the bleeding screw.

For vehicles with steering wheel to the left, start bleeding in the right rear wheel; with the steering wheel to the right, start bleeding in the left rear wheel, because it is farther from the brake cylinder.

- Repeat the work procedure on the other rear side of the vehicle.
- Install the venting hose -1- of the draining bottle in the rear section of the bleeding screw, loosen the bleeding screw and drain a corresponding quantity of brake fluid (check the table below).



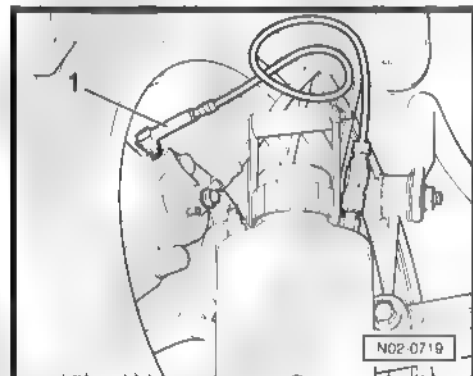
- Tighten the bleeding screw.

For vehicles with steering wheel to the left, start bleeding in the right rear wheel; with the steering wheel to the right, start bleeding in the left rear wheel.

- Repeat the work procedure on the other rear side of the vehicle.

Vehicles with 5-gear mechanical transmission.

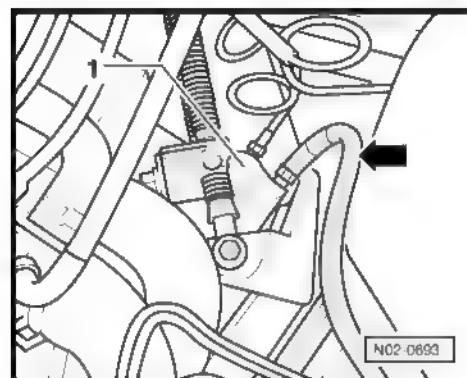
- Remove the protection cover from the clutch drive piston bleeding screw
- Couple the hose from -VAG 1793- -arrow- to the clutch drive piston -1-, loosen the bleeding screw and drain approximately 0.1 liter.





- Tighten the bleeding screw.
- Press the clutch pedal several times.

Sequence Wheel brake cylinder brake shoes	Amount of brake fluid that must be drained from the wheel brake cylinders, that is, from the brake fittings:
right rear	0.25 litre
left rear	0.25 litre
right front	0.25 litre
left front	0.25 litre



Total quantity: 1 litre <sup>15)</sup>

15) of brake fluid drained from the brake fluid reservoir and from quantity changed in the hydraulic clutch drive.

- Put the protection covers in the bleeding screws.
- Change the position of the passage lever on the Brake filler and bleeder -VAS 5234- or on the Brake bleeding device -VAG 1869- to position -B- (check the operating instructions).
- Remove the passage hose from the adapter.
- Remove the brake fluid reservoir adaptor.
- Install the brake fluid reservoir cover.
- Remove the Brake pedal's tensioning element -VAG 1869/2- between the driver's seat and the brake pedal, by pressing it.
- Check the brake pedal's pressure and its free clearance. Max. clearance 1/3 of the pedal stroke.



#### WARNING

*Do not forget to always correct the brake fluid's level in the reservoir.*

*Never let it reach the minimum level, otherwise air may enter the system.*

*Do not reuse the (used) aspirated brake fluid!*

### 4.40 Brake fluid level (depending on brake pad/lining wear) - check

Use only new, original VW brake fluid



#### WARNING

- ◆ *Do not let the brake fluid contact fluids containing mineral oils (oil, petrol, cleaning products). Mineral oils damage the seals and brake system hoses.*
- ◆ *The brake fluid is toxic. Additionally, due to its corrosive effect, it must not come into contact with painted surfaces.*
- ◆ *The brake fluid is hygroscopic, that is, it absorbs the local air humidity and, for this reason, it is stored in airtight packages.*
- ◆ *Wash off any brake fluid spillage with plenty of water.*
- ◆ *Follow the rules for disposal!*



Please note the following

Delivery inspection:

In the delivery inspection, the fluid level must be at the maximum marking.



**Note**

*In order to prevent the brake fluid from overflowing, the maximum marking must not be exceeded.*

Inspection service:

- The fluid level must always be assessed, based on the brake pad wear. With the vehicle in operation, the fluid level lowers due to wear and the automatic seating of the brake pads
- With the fluid level at the minimum marking and slightly above it, it becomes necessary to replenish the fluid when the brake pad wear limit has almost been reached.
- If the pads are new, or far from their wear limit, the fluid level must be within the minimum and maximum markings.
- If the fluid level drops below the minimum marking, check the brake system (repair measure) before replenishing the brake fluid.

#### 4.41 Headlight adjustment - check and adjust headlights if necessary

Special tools and workshop equipment required

- ◆ Headlight aligner -VAS 5046- or -VAS 5047-



In principle, the following checking and adjustment description is valid for every country. However, it is necessary to consider the guidelines and standards of each country.

Checking and adjustment conditions:

- Tyre inflation pressure OK.
- The headlight lenses must never be damaged or dirty.
- Reflectors and lamps OK.
- The vehicle load must be known.

Load: With a person or 75 kg on the driver's seat of empty vehicles (empty weight):

The weight of an empty vehicle is the weight of the vehicle ready for operation and with a full fuel tank (at least 90%), including the weight of every component required to operation (e.g: spare wheel, tools, towing hook, fire extinguisher, etc).

If the fuel tank is not at least 90% full, then simulate the load as follows

- Check the tank level on the fuel gauge. Establish the additional weight according to the table below and put this weight in the luggage compartment.

##### 4.41.1 Filling quantities table

Fuel reservoir indicator filling level	Additional weight in kg
1/4	30
1/2	20



Fuel reservoir indicator filling level	Additional weight in kg
3/4	10
full	0

Example:

If the fuel reservoir is half full, you must put an additional weight of 20 kg in the boot.



Note

*As additional weight, it is preferable to use fuel containers filled with water (one fuel container with a 5-liter capacity corresponds to a weight of approximately 5 kg).*

The vehicle should be moved for a few meters and dampened several times both at the front and at the rear so that the shock absorbers are properly settled.

- ◆ The vehicle and the headlight adjusting device must be on a level surface. ⇒ Instruction manual for the headlight adjusting device.
- ◆ The vehicle and the headlight adjusting device must be aligned.
- ◆ Tilting must be adjusted.

The frame above the headlight has the tilt values engraved in "%". The headlights must be adjusted according to the following data. The percentage is related to a projection distance of 10 meters. For instance, a 1.0% tilting value corresponds to 10 cm.

- ◆ The knurled wheel for adjusting the headlight reach must be in position (-).

#### 4.41.2 Check the headlight adjustment (with the new inspection display without 15° adjustment line).

Main headlights:

Please check the following:

- Check if, with the low beam on, the horizontal light-dark limit contacts the separation limit -1- of the test surface.



- Check if the point of inflexion -2- between the left horizontal part and the right ascending part of the light-dark limit runs vertically through the central mark -3-. In this case, the light core of the light beam is at the right of the vertical line.

**Note**

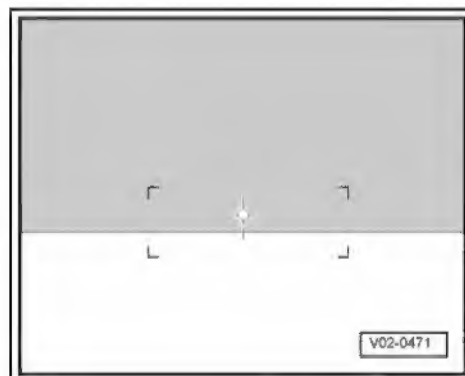
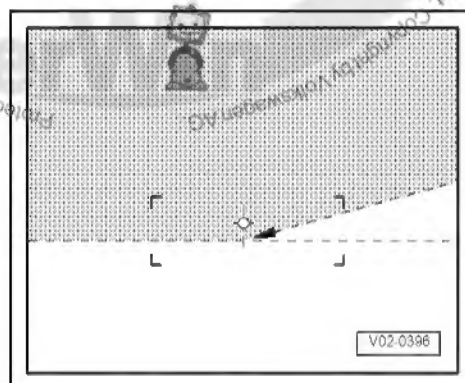
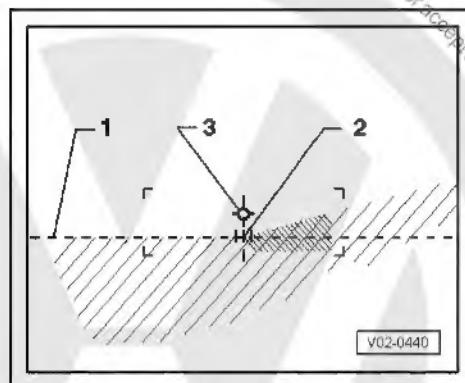
- ◆ Line -1- is the measurement from the ground to the centre of the headlight minus 4.72 in for a distance of 10.94 yd.
  - ◆ Line -1- is the measurement from the ground to the centre of the headlight minus 60 mm for a distance of 5 m.
  - ◆ For an easier determination of the breaking point -2-, cover and then release the left half of the headlight (seen from the driver's side). Then, test the low beam once more.
  - ◆ After correctly adjusting the low beam, the high beam is automatically adjusted. This means that the high beam centre must be on the headlight central mark -3-. A 200-mm deviation to the right or to the left, 150 mm upwards and 100 mm downwards is acceptable.
- For the current checking viewer with an adjustment line of 15°, the same adjustment as for new checking viewer applies. To avoid incorrect adjustments, the 15° line will no longer be considered.

**Fog lights**

- Check if the light-dark limit reaches the adjustment line and runs vertically over the entire measuring device line.

**Note**

- ◆ The light-dark separation mark is the measurement from the ground to the centre of the headlight minus 7.87 in in for 10.94 yd of distance.
- ◆ The light-dark separation mark is the measurement from the ground to the centre of the headlight minus 100 mm in for 5 m of distance.

**Long reach headlights (CrossFox)**



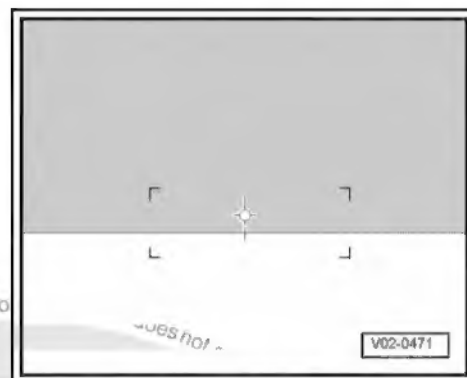


- Check if the light-dark limit reaches the adjustment line and runs vertically over the entire measuring device line.



**Note**

- ◆ The light-dark separation mark is the measurement from the ground to the centre of the headlight minus 5.00 cm in for 10.94 yd of distance.
- ◆ The light-dark separation mark is the measurement from the ground to the centre of the headlight minus 0.98 in in for 5 m of distance.



**Additional headlights:**

- Additional headlights from other systems, installed afterwards, must be installed according to their instructions.

### 4.41.3 Adjust the headlights

**Main headlights**

Main right headlight (the left headlight adjustment screws are positioned symmetrically).

- Adjust the headlights from the front, with a suitable Philips wrench.

On the left headlight, both set screws are arranged symmetrically.



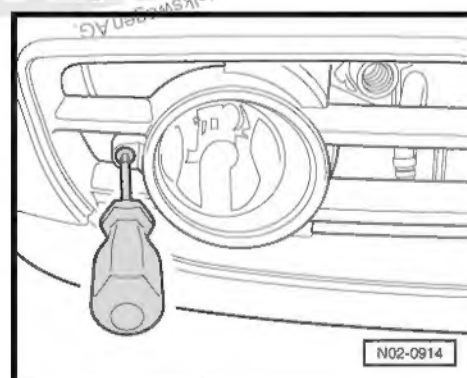
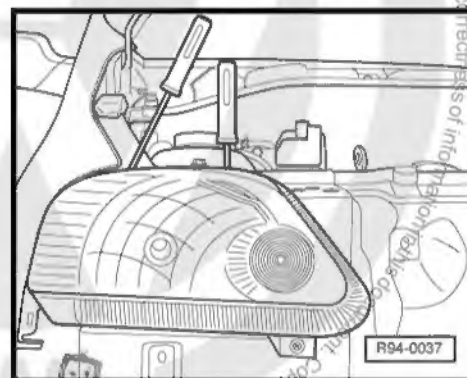
**Note**

*Please check also if both headlights move symmetrically when positioning the light range.*

**Fog lights**

- To reduce the beam focus, turn the setscrew to the right. A side adjustment is not expected.

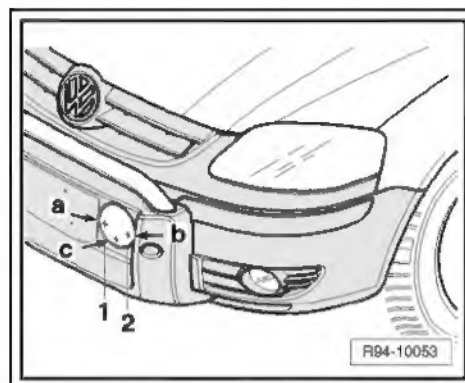
On the left headlight, the setscrew is arranged symmetrically.





#### Long reach headlights (CrossFox)

- Release the screws-1- and -2-only enough to slightly move the headlight.
- Press the headlight or move it forward -c- to the vertical adjustment (height).
- Press the headlight in -a- or -b- for horizontal adjustment (right and left).



### 4.42 Perform a test run

The following items depend on the vehicle equipment and local conditions (city/country).

During a test run, evaluate the following items:

- Engine: Power, ignition failures, idle speed behavior, acceleration.
- Clutch: Starting performance, pedal force, smell.
- Transmission: Mobility, position of the selection lever.
- ABS operation: During an ABS-controlled braking, a slight pulsing on the brake pedal should be noticed.
- Service brake and parking brake: Operation, idle stroke and action, one-side pulls, trepidations, noises.
- Steering wheel: Operation, steering wheel play, steering wheel in intermediate position with front wheels in straight position.
- Radio: Reception, interference noises.
- Air conditioning: Operation.
- Vehicle: Offsets on a straight run (level road).
- Balancing: Wheels, drive shafts.
- Wheel roller bearing: Noises.
- Engine: Hot start behaviour.